BIBLIOGRAPHY OF INVESTMENT AND OPERATING COSTS FOR CHEMICAL AND PETROLEUM PLANTS, JANUARY–DECEMBER 1957

BY SIDNEY KATELL, JOHN H. FABER, AND BRYCE L. MADDOX

* * * * * * * * * **Information Circular 7884**

UNITED STATES GOVERNMENT PRINTING OFFICE, WASHINGTON : 1959

Generated on 2024-09-21 17:23 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

UNITED STATES DEPARTMENT OF THE INTERIOR

Fred A. Seaton, Secretary

BUREAU OF MINES

Marling J. Ankeny, Director

The Library of Congress has cataloged this publication as follows:

U.S. *Bureau of Mines.*
Bibliography of investment and operating costs for chemical and petroleum plants. Jan. 1930–
Washington, U.S. Govt. Print. Off.
v. 27 cm. (*Its* Information circular)

1. Chemical plants—Bibl. 2. Petroleum industry and trade—Bibl. I. Title. II. Title: Investment and operating costs for chemical and petroleum plants. (Series)

TN295.U4 016.3384766 Int 59–53

U.S. Dept. of the Interior. Library
for Library of Congress
†

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington 25, D.C. - - - Price 40 cents

Generated on 2024-09-21 17:35 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

Digitized by Google

Original from
THE OHIO STATE UNIVERSITY

CONTENTS

	Page
Introduction	1
Acknowledgments	2
Abstracts	2
Subject index	48
Author index	53

Generated on 2024-09-21 17:34 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

Digitized by Google

Original from
THE OHIO STATE UNIVERSITY

BIBLIOGRAPHY OF INVESTMENT AND OPERATING COSTS FOR CHEMICAL AND PETROLEUM PLANTS, JANUARY-DECEMBER 1957[1]

by

Sidney Katell,[2] John H. Faber,[3] and Bryce L. Maddox[4]

INTRODUCTION

Since 1949 a series of Bibliography of Investment and Operating Costs for Chemical and Petroleum Plants has been published as Bureau of Mines information circulars. The publications and the periods covered are as follows:

Information Circular 7516	January 1930 - August 1948.
Information Circular 7705	September 1948 - June 1952.
Information Circular 7751	July 1952 - June 1954.
Information Circular 7847	July 1954 - December 1956.

The present report is concerned with the period from January 1957 through December 1957 and presents abstracts of cost data[5] obtained from the following sources:

1. Bureau of Mines Information Circulars.
2. Bureau of Mines Reports of Investigations.
3. Chemical Engineering.
4. Chemical Engineering Progress.
5. Cost Engineering.
6. Industrial and Engineering Chemistry.
7. Nucleonics.
8. Oil and Gas Journal.
9. Petroleum Engineering.
10. Petroleum Processing.[6]
11. Petroleum Refiner.
12. World Oil.

1/ Work on manuscript completed June 15, 1958.

2/ Supervisory chemical engineer, Bureau of Mines, U. S. Department of Interior, Morgantown, W. Va.

3/ Chemical engineer, Bureau of Mines, U. S. Department of Interior, Morgantown, W. Va.

4/ Chemical engineer (student trainee), Bureau of Mines, U. S. Department of Interior, Morgantown, W. Va.

5/ Only articles containing domestic cost information have been included in the bibliography.

6/ Publication of Petroleum Processing was discontinued with the September 1957 issue.

Generated on 2024-09-21 17:19 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

The information abstracted from the various publications appeared in the magazines under such headings as Business and Industry, Chemical Engineering Developments, Companies in the News, Headlines of the Month, Industrial News, Industry, Refining and Gas-Processing News, Refining News, What's Happening, and others. Although most items are related to chemical and petroleum plants, a few pertain to related fields, such as markets, drilling costs for petroleum, and field prices of crude oil. Certain articles discuss various aspects of cost-estimating procedures or description of processes.

Cost bibliographies prepared by other groups are discussed in items 70 and 271. The two references can be considered as supplemental to this report, since the amount of overlap in the contents is insignificant.

ACKNOWLEDGMENTS

The guidance and assistance of the following people are acknowledged: Dr. L. L. Hirst, chief, Branch of Coal Gasification, and the members of the Process Economics Evaluation Staff, Branch of Coal Gasification.

ABSTRACTS

A

1. ADAMS, ERNESTINE. 150 Deep Wells Cost $100,000,000 in 1956. Petrol. Eng., vol. 29, No. 3, March 1957, pp. B-21 - B-30.

   For most part this article lists number and location of wells that have been drilled below 15,000 feet. A table shows average cost per foot of deep wells since 1938.

2. ADAMS, JOHN H. Air and Gas Drilling Cuts Costs 22 Percent. Petrol. Eng., vol. 29, No. 5, May 1957, pp. B-30 - B-34.

   Adams based his findings on five wells drilled in Oklahoma-Arkansas area; total depth was 14,409 feet. When these wells were compared with mud-drilled holes in same area, it was found that average penetration rate increased 184 percent and average footage per bit increased 630 percent. However, air- and gas-drilling technique is still in very early stage of development, and several problems remain to be overcome.

3. _____. Air and Gas Drillings Gain Prestige. Oil Gas Jour., vol. 55, No. 32, Aug. 12, 1957, pp. 123-126.

   Contains essentially same information as reference 2.

4. ANDERSON, JACK O. Underground Storage Cuts Costs 90%. Petrol. Refiner, vol. 36, No. 4, April 1957, pp. 149-151.

   Atlantic cut LPG storage costs at its Denton gasoline plant with two salt cavities. Cost per barrel is $2.15 and could easily be reduced to $1 per barrel by additional enlargement of cavities.

Generated on 2024-09-21 17:19 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

5. ANDERSON, W. KERMIT. Rare Earths Show Promise as Reactor-Control Materials. Nucleonics, vol. 15, No. 1, January 1957, pp. 44-46.

Briefly discusses use of rare earths as control materials. Some rough cost figures are given for several compounds that could be used.

6. APITZ, C. R. Economics of Gas-Turbine Drivers in the Refinery. Petrol. Eng., vol. 29, No. 13, December 1957, pp. C-11 - C-14.

Analyzes gas-turbine applications and operating characteristics for pump and compressor drives, power generation, and emergency use. Gas turbines of 100-hp. category can be installed at approximate price of $170 to $200 per brake-horsepower, depending on cycle and auxiliaries required. Apitz states that there are definite areas in refinery operation where use of gas turbines is an economic advantage and that more uses will be developed within next few years.

7. ARMSTRONG, R. H., AND KELBER, C. N. Argonant - Argonne's Reactor for University Training. Nucleonics, vol. 15, No. 3, March 1957, pp. 62-65.

Briefly describes Argonant reactor, which will be used for instruction and research. Some cost figures are provided.

8. ARNDT, FRED W. Some Economic Materials of Construction for Corrosive Fume Handling. Ind. Eng. Chem., vol. 49, No. 4, April 1957, pp. 61A-62A.

Discusses use of plastic for fume ducts, stacks, and fans in place of more expensive alloys and steel. Approximate costs of 12-inch-diameter duct for different materials are included, as well as relative cost and service life of different materials used for fans.

9. ARNOLD, T. BEN, AND VALENTINE, STEPHEN. "Package" Concept Cuts Expansion Cost. Oil Gas Jour., vol. 55, No. 36, Sept. 9, 1957, pp. 97-99.

Describes how Vickers Petroleum Co. upped its T.C.C. capacity 50 percent yet kept cost of expansion moderate. Most work was done with unit on stream. No actual cost data given.

B

10. BACON, R. H., AND VOLKENING, V. B. Color Can Revolutionize Your Plant. Petrol. Refiner, vol. 36, No. 1, January 1957, pp. 120-124.

Discusses use of "mass-color" system in chemical plants. Use of multicolor painting adds safety, good housekeeping, pride, and morale. Gives cost figures.

11. BASEL, LOUIS, AND KOSLOV, JOSEPH. Design and Cost Estimation for a Pyrometallurgical Reprocessing Plant. Nucleonics, vol. 15, No. 8, August 1957, pp. 56-60.

Generated on 2024-09-21 17:32 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

States that a pyrometallurgical reprocessing plant, using oxide-slagging method, can handle 18,000 kg. per year of enriched uranium alloy at $79 per kilogram. Tables list estimated plant construction costs and provide breakdown on estimated annual costs.

12. BATES, ROBERT L. Side-Entering Propeller Agitators. Cost Eng., vol. 2, No. 3, July 1957, pp. 77-83.

Describes side-entering agitators, including their application and certain design characteristics. Graphs provide complete unit costs of both belt- and gear-drive side-entering agitators.

13. BEACH, FRANK W. "Fail-Safe" LACT Unit, Here's How It Works. World Oil, vol. 145, No. 6, November 1957, pp. 133, 135-137.

Positive displacement meters are used to meter oil from various leases and transfer it to a pipeline through central lease automatic custody unit. Costs are given for major components of LACT unit and skid-mounted LACT meter unit.

14. BIGOS, JOSEPH. Update Your Ideas on Painting Equipment. Chem. Eng., vol. 64, No. 4, April 1957, pp. 300, 302, 304, 306.

Bigos states that, many times, cheapest way to combat corrosion is by increasing thickness of sides of steel equipment. Tables show that for steel at 25 cents per pound or less it may very well be cheaper not to paint.

15. BINGHAM, C. A. Continental Finds 762-Volt Power Cheaper. Oil Gas Jour., vol. 55, No. 1, Jan. 7, 1957, pp. 109-110.

In 2 pools in western Kansas 762-volt electric power systems for pumping wells have been 12.5 and 14 percent cheaper than 440-volt systems. Cost comparison shows that savings are in reduction of transformers, transformer stations, and primary electric lines.

16. BLUMBERG, S. P. A Refinery View of Tomorrow's Fuels. Petrol. Eng., vol. 29, No. 6, June 1957, pp. C-6 - C-11.

Explains 4-step process for producing 110 octane gasoline. Complete cost case is developed for 50,000-barrel-per-day refinery, showing stepwise additions of processes to meet future gasoline quality.

17. _____. How to Make 110 Octane Premium. Petrol. Refiner, vol. 36, No. 5, May 1957, pp. 193-198.

Contains essentially same information as references 16 and 18.

18. _____. 110 Research Octane by 1960? Oil Gas Jour., vol. 55, No. 20, May 20, 1957, pp. 137-141.

Contains essentially same information as references 16 and 17.

Generated on 2024-09-21 17:20 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

19. BOOSA, WILLIAM L. Electrification Pays Off. World Oil, vol. 144, No. 4, March 1957, pp. 159-162.

Experience of Cities Service Oil Co. indicates that electric operation of pumping wells will result in appreciable savings in labor and maintenance as well as increased production. Following results have been obtained from this electrification program.

1. A 21-percent increase in oil production.
2. An 18.9-percent decrease in lease expense.

Some figures are included on cost of electrification.

20. BOULLIOUN, E. H., JR. Integrate Your Major Revamps With a Turnaround. Petrol. Refiner, vol. 36, No. 1, January 1957, pp. 169-170.

Describes method by which Cosden Petroleum Corp. increased its cat-cracker capacity 50 percent in conjunction with its turnaround. There were only 35 days down time for job. Cost was $750,000 for revamp job.

21. BOYNTON, STUART D. Radioisotopes - the Refiner's Everyday Tool. Petrol. Processing, vol. 12, No. 8, August 1957, pp. 55-58.

Radioisotopes can be used for accurate measurement of sediment in vapor lines before trouble starts, to measure liquid levels in vessels for which conventional gages are not reliable and to act as a trouble shooter for circulation problems in regenerator standpipe and reactor feed line of a catalytic-cracker. Includes some cost figures.

22. BRACK, W. L., AND BEYCHOK, M. R. First Postwar Butadiene Plant. Oil Gas Jour., vol. 55, No. 23, June 10, 1957, pp. 82-88.

Describes 64,800-ton-per-year butadiene plant built by Texas Butadiene & Chemical Corp. of Houston. Cost of plant given as $30,000,000.

23. BRANT, V. L. Bauxite Filters Boost Alkylate Quality, Saves $1,000 Per Day. Petrol. Eng., vol. 29, No. 11 October 1957, pp. C-32, C-33, C-35.

Discusses a bauxite treating system in service on 3,000-barrel-per-day alkylation unit at D-X Sunray refinery in West Tulsa.

This method has been superior to old methods of caustic washing. Following savings have been realized:

1. Reduced maintenance and down-time costs 85 percent for savings of $175 per day.

2. Reduced neutralizing and inhibiting costs $50 per day.

3. Improved lead susceptibility of alkylate, producing a savings of $600 to $700 per day for tetraethyl lead when the alkylate is used in a motor blend.

500125 O - 59 - 2

Generated on 2024-09-21 17:19 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

24. _____. Bauxite Treaters Save for D-X Sunray. Oil Gas Jour., vol. 55, No. 36, Sept. 9, 1957, pp. 103, 105, 106.

Contains essentially same information as reference 23.

25. BRERETON, D. S., AND DUNKI-JACOBS, J. Switchgear's Getting Safer All the Time. Oil Gas Jour., vol. 55, No. 1, Jan. 7, 1957, pp. 102-105.

Discusses switchgears, both inside and outside, as they are used in modern refineries. States that a standard switchgear can be installed as close as 25-50 feet to source of hazard in a freely ventilated process area. Charts provide cost information for various units.

26. BROWN, NORMAN F. Free Piston Has Quick Payout. Oil Gas Jour., vol. 55, No. 47, Nov. 25, 1957, pp. 110-111, 113-114.

Use of free piston in gas lifting has increased gas production up to 35 percent and liquid production up to 23 percent. Cost ranges from $900 to $1,600, with an average payout of 4 months.

27. BRUCE, FRANK R. Look for Nuclear Fuel Reprocessing by '65. Chem. Eng., vol. 64, No. 7, July 1957, pp. 202-206.

Reviews economics of a nuclear-fuel reprocessing plant. Gives some data on capital investment required for such a plant. Bruce states that enough fuel to keep a plant like this on stream 100 percent of time will be available in 1965.

28. BRYAN, J. M. Alloy Electrical Material May Be Cheap. Petrol. Refiner, vol. 36, No. 10, October 1957, pp. 129-130.

Although stainless steel alloys cost 6 to 8 times those of galvanized steel and bronze alloys cost 4 to 5 times as much as galvanized steel, experience has shown that, for electrical service, higher priced corrosive-resistant material is cheaper for longtime continuous service.

29. BURNHAM, J. G. Part I - Which Nitrogen-Removal Method Is Best. Oil Gas Jour., vol. 55, No. 27, July 8, 1957, p. 143; part II - Economics of Nitrogen-Removal Plants. Oil Gas Jour., vol. 55, No. 28, July 15, 1957, p. 120; part III - Advantages of Nitrogen-Removal Plants. Oil Gas Jour., vol. 55, No. 32, Aug. 12, 1957, p. 129.

Part I contains a table comparing investment, daily income, and expense of three different nitrogen-removal methods. Part II supplies capital investment operating costs, etc. Part III has no cost data.

30. BUSH, PHILIP D. ETR: Design and Construction. Nucleonics, vol. 15, No. 3, March 1957, pp. 48-56.

This article is one of a series on engineering test reactor (ETR) in March issue. Bush discusses testing and selection of metals used for vessels and piping and cement used for shielding. Cost data furnished for major ETR components and for cooling system.

Generated on 2024-09-21 17:21 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

C

31. CAMP, J. M., ORTLOFF, J. E., AND BLOOD, R. H. Save Up to 25 Percent on 7,500-ft. Well. Oil Gas Jour., vol. 55, No. 40, Oct. 7, 1957, pp. 141-143.

A three-cone bit, still lacking minor adjustments, has been developed, with a drilling rate comparable with conventional tricone. Life of bit is about 90 percent that of conventional bit. However, based on its performance and with surface equipment designed for casing drilling, drilling cost can be reduced 25 percent in a 7,500-foot hole.

32. _____. Wire-Line Retractable Rock Bits. Petrol. Eng., vol. 29, No. 11, October 1957, pp. B-38 - B-40.

Contains same information as reference 31.

33. CAMPBELL, H. T. Scheduling Design Work. Petrol. Refiner, vol. 56, No. 11, November 1957, pp. 313-315.

This article states important elements that make up design scheduling. Detailed schedules predict location and activity of maintenance and construction workers; however, such a program is ineffective unless dependable engineering-design information is available.

34. CAMPBELL, O. F. Twenty-Five Percent Less Fuel per Barrel of Crude. Oil Gas Jour., vol. 55, No. 30, July 29, 1957, pp. 205-206, 208.

Sinclair Refining Co. uses 25 percent less fuel by using an air heater that recovers waste heat in flue gases and returns it to furnace. A chart gives fuel saving per year as various furnace efficiencies.

35. CANNON, G. E., AND WATSON, R. A. A Case for Small-Hole Completions. Petrol. Eng., vol. 29, No. 5, May 1957, pp. B-82, B-84, B-86, B-88.

Discusses small-hole drilling as carried out by Humble Oil Co. A study of 304 Texas wells shows a well-cost saving of 14 percent by slim-hole drilling.

36. CANNON, RON. Cosden's Styrene Unit - They Said It Couldn't Be Built. Petrol. Processing, vol. 12, No. 4, May 1957, pp. 226-227.

Cosden's styrene plant - first of its kind - is in production and making hypercritical separation that experts said was impossible. Cost of 20-million-pound-per-year unit given as $3 million.

37. CHEMICAL ENGINEERING. Bigger Cells - Lower Cost. Vol. 64, No. 7, July 1957, pp. 160, 162.

Describes Diamond Alkali Co.'s new 30,000-ampere diaphragm-type electrolytic chlorine cell. Although no actual cost figures are provided, following advantages are claimed.

Generated on 2024-09-21 17:19 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

1. Production rate flexible.
2. Low investment cost.
3. Lower maintenance and operating costs.

38. CHEMICAL ENGINEERING. Capitalized Costs Ease Choice of Materials. Vol. 64, No. 7, July 1957, pp. 292, 294.

Article supplies a capitalized cost comparison of aluminum and admiralty tubes for different rates of return. Chart shows that with a 14-percent return of capital, aluminum tubes could have a service life of 7 years, but admiralty tubes would have to last 20 years.

39. _____. Contract Maintenance Can Cut Costs. Vol. 64, No. 1, January 1957, p. 176.

Petroleum refiners are cutting maintenance costs by farming out plantwork to contractors. This reduces maintenance costs in three ways: (1) Reduces payment for "idle time"; (2) holds overtime to a minimum; (3) reduces capital investment for maintenance equipment.

40. _____. Equipment Bill Breakdown. Vol. 64, No. 1, January 1957, p. 176.

A brief breakdown on money spent by chemical processes for different types of equipment during 1956.

41. _____. Equipment Cost Indexes (Marshall & Stevens)

These indexes are compiled quarterly by Marshall & Stevens, Inc., of Chicago, Ill., but indexes are listed monthly. Monthly references follow:

Vol.	No.	Date	Page
64	1	January 1957	154
64	2	February 1957	188
64	3	March 1957	188
64	4	April 1957	196
64	5	May 1957	194
64	6	June 1957	184
64	7	July 1957	186
64	8	August 1957	194
64	9	September 1957	188
64	10	October 1957	188
64	11	November 1957	184
64	12	December 1957	188

42. _____. Equipment Cost Rise Accelerates. Vol. 64, No. 3, March 1957, pp. 266-267.

Marshall & Stevens annual indexes of comparative equipment costs from 1913 to 1956 for 8 process industries and 4 related industries.

Generated on 2024-09-21 17:35 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

43. CHEMICAL ENGINEERING. For Chlorine Recovery, Take Your Choice. Vol. 64, No. 6, June 1957, pp. 154, 156.

Describes two new ways to recover chlorine: The Hooker method and the diamond method. Both systems have several advantages. In Hooker method chlorine is absorbed in water, while in diamond method carbon tetrachloride is used to absorb the chlorine. Capital investment and operating costs are given for both methods.

44. _____. Hot Crystallization Recovers Waste Acid. Vol. 64, No. 8, August 1957, pp. 168, 170.

Describes new ferrous monohydrate process for recovering waste sulfuric acid. Advantages of this system include: (1) Regenerates all waste sulfuric acid present as such in pickle liquor; (2) recovers all ferrous sulfate formed during each pickling cycle; and (3) preserves heat content of waste liquor. For a 50,000-gallon-per-day plant capital investment is $1 million and operating cost 1 cent per gallon. For 100,000 gallons per day cost is $1.3 million and 0.5 cent per gallon, respectively.

45. _____. Integrated Process Gets Low-Cost ClO_2. Vol. 64, No. 11, November 1957, pp. 142-144.

Describes a new process for making ClO_2 for 10-13 cents per pound as against 23-26 cents per pound for competitive methods. Feature of this new process is electrolytic production of sodium chlorate, followed by reduction with HCl. Cost of a 1.5-ton-per-day plant is given as $625,000, about $315,000 more than most competing process installations, but a savings of $130,000 per year is realized because of lower cost. Thus, in 2-1/2 years difference is paid off.

46. _____. Key to Low Recovery Costs. Vol. 64, No. 4, April 1957, pp. 166, 168.

Describes new Udy arc furnace, which produces ferromanganese from low-grade ore. Operating cost for process is stated as $150 per ton of FeMn. Ingot iron is a valuable byproduct from the furnace.

47. _____. Labor Costs Checklist. Vol. 64, No. 1, January 1957, p. 174.

List of many factors that affect labor costs and changes that can be made to reduce these costs.

48. _____. Maintenance Jumps Into Major Role. Vol. 64, No. 5, May 1957, pp. 253-256.

Discusses maintenance problem and several methods to cut maintenance costs. No actual cost data included.

49. _____. NaOCl Solves Odor Problem. Vol. 64, No. 12, December 1957, pp. 164-166.

Generated on 2024-09-21 17:24 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Describes hypochlorite oxidation system that eliminated odor problem for Oregon glue factory. Cost of equipment was only $4,000 and operating cost $0.40 per hour. Equipment eliminated odor from 100-c.f.m. gas in the 1-million-pound-per-year glue plant.

50. CHEMICAL ENGINEERING. New Flocculants Yield Real Benefits. Vol. 64, No. 5, May 1957, pp. 162, 164.

Discusses new-type flocculants and their use in uranium-process industry. Gives investment and operating costs for various flocculants.

51. _____. New Team Licks Phenolic Waste Problem. Vol. 64, No. 11, November 1957, pp. 148, 150.

Describes method that can reduce phenol content of waste streams from around 5,000 p.p.m. to about 9 parts p.p.m. on a continuous basis. Investment on a 12,000-g.p.d. unit is $125,000; on a 100,000-g.p.d. unit it is about $200,000.

52. _____. Oxygen Plant Fills Dual Role. Vol. 64, No. 9, September 1957, pp. 152, 154.

A single 500-ton-per-day unit turns out low-purity gas for ferromanganese blast enrichment and high-purity gas for a variety of other steel-mill uses. Cost of this plant is stated as $3 million.

53. _____. Process Union Begets Low-Cost Ethylene. Vol. 64, No. 8, August 1957, pp. 158-160.

Describes method in which standby peak load facilities in gas-utility plants can be utilized to produce ethylene for as low as 1-1/4 cents per pound. Operating costs and capital investment are given for a 122,000-gallon-per-day plant.

54. _____. Revamp Nets Extra Capacity - Cheaply. Vol. 64, No. 2, February 1957, pp. 146-148.

Shows how Shell Chemical Corp. increased feed-preparation capacity 58 percent - from 2,100 to 3,000 barrels per day - at its butadiene plant at Torrance, Calif. By substituting acetonitrile for acetone cost for extra capacity was $148,000; building a duplicate unit would have cost $5 million.

55. _____. Shale Oil: Heading for the Big Time? Vol. 64, No. 9, September 1957, pp. 146-148.

Short description of Union Oil's new $1.5 million retort, which can handle more than 300 tons per day of shale. Brief discussion of economic outlook for shale oil is also included.

56. _____. Shippers Switch to Bulk Delivery. Vol. 60, No. 1, January 1957, pp. 172, 174.

Generated on 2024-09-21 17:23 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Briefly describes several new devices that permit bulk delivery of more materials at lower costs. Devices include truck trailers and railroad cars employing pneumatic loading and unloading equipment, rubber-balloonlike bins, and heated and pressurized tank trucks and railroad cars.

57. CHEMICAL ENGINEERING. Short Cuts Simplify Hexamine Process. Vol. 64, No. 9, September 1957, pp. 156, 158.

New hexamine process greatly reduces consumption of utilities, improves product purity and yield, and reduces investment and labor cost. Describes 4-ton-per-day plant built in France for $100,000.

58. _____. Spot-Checking Cuts Control Lab Costs. Vol. 64, No. 7, July 1957, pp. 156, 158.

Describes spot-checking method used by Owen-Corning Fiberglass Corp., which reduced its control-laboratory cost $10,000 a year.

59. _____. Sprayed-on Foam Slices Insulation Cost. Vol. 64, No. 10, October 1957, pp. 158, 160, 162.

Reports new polyurethane insulation spray. This new spray greatly reduces labor costs. Using this spray a chemical-process vessel was insulated in 16 man-hours as compared with using magnesia block. Cost of spray unit, including gun, proportioning unit, and hose, is $8,950.

60. _____. Ti Plant Hits Full Capacity. Vol. 60, No. 1, January 1957, pp. 124, 126.

Briefly pictures the Cramet Inc. plant at Chattanooga, Tenn. Cost of 6,000-ton-per-year plant is given as $28 million.

61. _____. Treater Counters High BOD Waste Stream. Vol. 64, No. 4, April 1957, pp. 186, 188.

Describes new Infilco Type IO Aero-Accelerator unit in which organic waste water with biochemical oxygen demands greater than 600 p.p.m. can be treated more effectively and economically. For a 350 g.p.m. plant saving is at least $20,000.

62. _____. Wet Scrubber Fits into Duct. Vol. 64, No. 8, August 1957, pp. 192, 194.

Discusses new Joy Microdyne dust collector which fits directly into ductwork. Installation costs are 25-50 percent lower, much less water is used, and pressure drop is much less. Cost of a 48,000-c.f.m. unit constructed of type 304 stainless steel is $20,000 without fan.

63. CHILTON, C. H. Process - Data Handling. Chem. Eng., vol. 64, No. 8, August 1957, pp. 149-150.

Generated on 2024-09-21 17:32 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Reviews $1,000,000 automatic data logging and scanning system in Tidewater Oil Co. refinery at Delaware City; it has a total capacity of about 5,000 points, or process variables. Present cost (1957) for such a system would be about $400 per point, or twice as much.

64. CHOU, JAMES. Chart for Net Return of Investment After Taxes. Chem. Eng., vol. 64, No. 1, January 1957, p. 258.

Chart enables one to compute net profit after taxes in terms of compound interest rate that will be realized through anticipated savings.

65. CLARK, W. G. Accurate Way to Estimate Pipe Costs. Chem. Eng., vol. 64, No. 7, July 1957, pp. 243-246.

Gives new method and new data for estimating labor and material costs for carbon steel, stainless steel, and Saran-lined pipe in sizes up to 8 inches in diameter. Several graphs and tables provide quick, accurate piping costs.

66. CLARKE, S. S. Mining Methods and Costs at the Westside Mine of the Eagle-Picher Co., Cherokee County, Kans. Bureau of Mines Inf. Circ. 7774, 1957, 20 pp.

Describes mining methods and costs at Westside zinc-lead ore mine in Missouri-Kansas-Oklahoma area.

67. CLAYTON, CARL C. Steam-Jet Refrigeration Systems. Cost Eng., vol. 2, No. 2, April 1957, pp. 42-48.

Brief summation of steam-jet refrigeration systems and steam and cooling-water requirements for different conditions. Cost data given for installed cost of system, using 1 to 4 boosters.

68. CLOUSE, R. J., DYKSTRA, J., AND THOMPSON, B. H. Uranium Recovery From Aqueous Wastes. Chem. Eng. Prog., vol. 53, No. 2, February 1957, pp. 65F - 69F.

Considers recovery system for uranium from nuclear equipment cleaning solution. This uranium is processed to an oxide, then fluorinated to uranium hexafluoride. Operating cost for fluorination step given as $9.86 per pound uranium.

69. COLE, W. A. Mining and Milling Methods and Costs, Tri-State Line, Inc., Jo Daviess County, Ill. Bureau of Mines Inf. Circ. 7780, 1957, 19 pp.

Discusses operating methods and costs at Gray zinc-lead mine. Several tables give rather complete breakdown of all operating costs for fiscal year 1955.

70. COST ENGINEERING. Cost Literature - 1956. Vol. 2, No. 1, January 1957, pp. 23-34.

Generated on 2024-09-21 17:23 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Abstracts of articles containing cost information, which were published in 1956.

71. CURRY, S. W. Do Profits Keep Pace With Octanes? Oil Gas Jour., vol. 55, No. 31, Aug. 5, 1957, pp. 68-71.

Hypothetical refinery considered in this article shows an attractive payout for stepwise octanes to 101 pool gasoline. Adding processes in most economical order is main trick to holding costs down. Several tables and graphs present various cost data.

72. _____. Economics of Producing High-Octane Pool Gasoline. Petrol. Eng., vol. 29, No. 5, May 1957, pp. C-6 - C-9.

Essentially same information as references 71 and 73.

73. _____. How Much Future Octane Will Cost. Petrol. Refiner, vol. 36, No. 5, May 1957, pp. 209-212.

Essentially same information as references 71 and 72.

D

74. DARE, W. L. Mining Methods and Costs, Calyx Nos. 3 and 8 Uranium Mines, Temple Mountain District, Emery County, Utah. Bureau of Mines Inf. Circ. 7811, 1957, 36 pp.

Another of series of reports dealing with uranium mining on Colorado Plateau. This report describes methods used at Calyx Nos. 3 and 8 mines. Breakdown of mining costs is given in table form.

75. _____. Mining Methods and Costs, Continental Uranium, Inc., Continental No. 1 Mine, San Juan County, Utah. Bureau of Mines Inf. Circ. 7801, 1957, 20 pp.

One of a series of papers being prepared by Bureau of Mines on methods and costs of mining uranium on Colorado Plateau. This deals with Continental No. 1 mine of Continental Uranium, Inc. Table summarizes costs for a 7-month period in 1956.

76. DARE, W. L., AND DELICATE, D. T. Mining Methods and Costs - La Sal Mining & Development Co., La Sal Uranium Mine, San Juan County, Utah. Bureau of Mines Inf. Circ. 7803, 1957, 48 pp.

This report is one of a series on methods and costs of uranium mining on Colorado Plateau. It describes mining methods used at La Sal mine. Rather complete breakdown on mining costs is provided.

77. DAVIS, LUTHER W. How to Stretch Your Power Dollar. World Oil, vol. 144, No. 2, Feb. 1, 1957, pp. 49-51.

500125 O - 59 - 3

Generated on 2024-09-21 17:27 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Presents general discussion on electric power costs and steps that can be taken to reduce them. Case histories reveal that oil-company savings of 12 percent can be realized.

78. deCHASTELAIN, A. G. G. How 16 Wells Were Drilled Directionally. Oil Gas Jour., vol. 55, No. 1, Jan. 7, 1957, pp. 99-101.

Inaccessible locations have necessitated considerable directional drilling in Canada. DeChastelain presents a cost comparison of 8 directional wells drilled in Pembina field and 8 directional wells drilled in Joffre-Burbank fields.

79. DECOSSAS, K. M., MANY, H. G., McMILLAN, O. J., JR., GASTROCK, E. A., AND POLLARD, E. F. Filtration - Extraction Process. Ind. Eng. Chem., vol. 49, No. 6, June 1957, pp. 930-935.

Engineering cost analysis of filtration-extraction process for cottonseed, with emphasis on effects of size and feasibility of process for small plants. Several graphs and tables supply complete cost data.

80. DICKERSON, R. G. Consider the Economics of Scale-Up. Petrol. Refiner, vol. 36, No. 9, September 1957, p. 268.

Discusses various factors that affect economics of scale-up. No cost data given.

81. DIETSCH, F. F., AND WILCOX, D. V. Lighter Loads, Lower Costs, Equal Strength...Aluminum Is the Answer. Oil Gas Jour., vol. 55, No. 35, Sept. 2, 1957, pp. 144-146.

Studies use of aluminum derricks in place of steel at savings in weight and costs. No actual cost data given.

82. DONOVAN, J. R. Don't Write Off the Batch Process. Chem. Eng., vol. 64, No. 11, November 1957, pp. 241-244.

Contrasts batch process with continuous process. Economic comparison is made between 2 processes. No actual cost data included.

83. DOREMUS, E. P., AND DAVIS, JACK G. Mobile Platforms Get Cathodic Protection. World Oil, vol. 144, No. 1, January 1957, pp. 129, 132-135.

Discusses several different types of cathodic protection. States that protection against salt-water corrosion is averaging about 3 to 4 cents per square foot per year.

84. DOREMUS, G. L., AND LAWNICK, J. J. $10,000 Cathodic-Protection System Combats Well-Repair Costs Averaging $4,000. Oil Gas Jour., vol. 55, No. 42, Oct. 21, 1957, pp. 122-123, 125-126.

Cathodic protection system was installed on 48 wells in Waskom field, East Texas, to control external coring corrosion in shallow formations. Cost of system was $10,000.

Generated on 2024-09-21 17:19 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

85. DOW, W. M. Adsorption - the process to Watch. Petrol. Refiner, vol. 36, No. 4, April 1957, pp. 141-145.

Describes a fixed-bed unit that recovers natural gasoline from small-volume, lean gas streams. Installed cost of a 40-barrel-per-day unit is $44,000. This unit can be placed on any typical natural-gas stream of 5 to 20 million cubic feet per day with a pentane plus content from about 0.09 to 0.35 gallon per minute, respectively.

86. DUCAN, DAN. Here's a Cost-Control Program That Works. World Oil, vol. 145, No. 5, October 1957, pp. 158-162.

Lists 22 major items of rig expense where a cost savings could be effected. Gives standard daily costs and actual daily costs and discusses ways to reduce costs over standard.

E

87. ECKEL, J. G., AND WORRELL, G. R. Why Dorchester Will Add Catalytic Reforming. Petrol. Refiner, vol. 36, No. 4, April 1957, pp. 146-148.

Explains some reasons why Dorchester Corp. chose to install a 1,000-barrel-per-day Unifiner-Catformer combination. An economic study shows that this $550,000 investment will have a payout of 1.3 years.

88. ELDER, HARVEY B., JR. Mr. Arthur. Petrol. Eng., vol. 29, No. 6, June 1957, pp. B-53, B-56, B-57, B-60, B-61.

Describes "Mr. Arthur," a California-type, elevated-deck, self-stabilizing, submergible, mobile drilling unit rated for 20,000-foot depth. Unit is slated for use in water depths up to 70 feet. Total cost was nearly $5 million.

89. ELLIOTT, RAINEY. Ways to Reduce Oilfield Equipment and Service Costs. The Supplier and the Contractor. Petrol. Eng., vol. 29, No. 13, December 1957, pp. B-34, B-36.

Lists 7 ways in which suppliers and contractors can identify costly practices and means by which certain expenditures can be reduced.

90. EMERSON, H. N. Oil - No. 1 Transportation Job. Oil Gas Jour., vol. 55, No. 46, Nov. 18, 1957, pp. 226-227, 229-232.

Discusses various types of oil-transportation methods. Cost data included are: Representative capital costs; representative tariff rates; and fixed and variable costs of different methods.

91. ERVIN, P. S. A Successful Waterflood of a Fractured Reservoir. Oil Gas Jour., vol. 55, No. 24, June 17, 1957, pp. 122-126.

By waterflooding the fractured Marble Falls limestone in Kirk field (Texas) $2,440,000 worth of oil was recovered. Investment and operating costs were $743,000, leaving a net revenue of $1,697,000.

Generated on 2024-09-21 17:34 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

92. EVANS, THADDEUS B., AND EILERTSEN, N. A. Mining Methods and Costs at the Sunbright Limestone Mine, Foote Mineral Co., Sunbright, Va. Bureau of Mines Inf. Circ. 7793, 1957, 44 pp.

Reviews mining methods and gives complete breakdown on costs at Sunbright limestone plant. Labor requirements, wage rates, and power consumption are also listed.

F

93. FAULK, HUGH. How Straight Does a Hole Need to Be? Petrol. Eng., vol. 29, No. 3, March 1957, pp. B-31 - B-33.

Estimates that more than $50 million is spent in United States each year for hole-deviation control. By liberalizing deviation program a $40 million saving can result.

94. FEDOR, WALTER S., BANUS, M. DOUGLAS, AND INGALLS, DAVID P. Potassium Borohydride Manufacture. Ind. Eng. Chem., vol. 49, No. 10, October 1957, pp. 1664-1672.

Describes process used by Metals Hydrides, Inc., to produce potassium borohydride. Total investment for a 2,800-pound-per-day continuous plant would be $1,680,000, with operating costs $2.99 per pound of product.

95. FEESER, JOHN R. Why Use Multiple Parallel String Completions? World Oil, vol. 145, No. 7, December 1957, pp. 159-160, 162, 164, 168.

Disucsses use of multiple parallel string completion. Although no actual cost figures are given, article states that using multiple string completions saves money in following ways:

1. Saves steel.
2. Reduces development costs.
3. Reduces workover costs.
4. Reduces total operating costs.
5. Prolongs casing life.

96. FISCHER, WERNER. Try This New Way to Get Oil-Free Wax. Petrol. Refiner, vol. 36, No. 9, September 1957, pp. 236-238.

Describes new spray deoiling process. Cost of a plant would be about $40 per annual ton of charge.

97. FLOURNOY, R. W. Al Alloy Variety Spun Use in Exchangers. Chem. Eng., vol. 64, No. 10, October 1957, pp. 318, 320, 322, 324.

List of aluminum alloys suitable for heat exchangers is given, along with their physical properties. A cost comparison shows that the aluminum alloys are second only to steel for low cost. Lower installation costs and savings from painting make aluminum competitive with steel.

Generated on 2024-09-21 17:19 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

98. FOLKS, JOHN H. Dry Hole Money, the Fair Contribution. Petrol. Eng., vol. 29, No. 7, July 1957, pp. B-21 - B-24.

Reviews 6 basic principles that help to determine the fair burden in dry-hole contributions. Usage and inequities of 6 methods are given, and examples show how cost is distributed in each method.

99. FOWLER, FRANK C. Process-Design Primer; Cost Evaluation: What to Include. Petrol. Refiner, vol. 36, No. 9, September 1957, pp. 256-261.

Brief discussion of each item that should appear in a cost evaluation.

100. _____. Process Design Primer; Plant Investment: How to Estimate It. Petrol. Refiner, vol. 36, No. 9, September 1957, pp. 261-265.

Study of plant investment, which to consider, and how to estimate various costs.

101. FOWLER, J. J. Mud Slug Cuts Liner Cost. World Oil, vol. 144, No. 5, April 1957, p. 169.

States that use of a slug of heavy drilling mud in drill pipe before plug can save an operator $6,000 per well when setting a liner.

102. FRASER, G. T., FINLAY, W. L., AND CATERSON, A. G. Industrial Applications of Titanium. Ind. Eng. Chem., vol. 49, No. 9, September 1957, pp. 75A-76A.

Corrosion damage to ordinary construction materials has caused some chemical plants to use the more expensive metal, titanium, for such items as thermowells and impellers. Because of better corrosion resistance, savings up to $3,000 a year have been realized, even though initial cost is much higher.

G

103. GAFFNEY, B. J. Which Depreciation Method Is Best? Petrol. Refiner, vol. 36, No. 12, December 1957, pp. 137-146.

Analyzes and compares 7 different depreciation methods. With rising costs and continuing inflation it is very important that correct depreciation methods are used.

104. GARRETT, H. U., AND TAYLOR, DONALD M. Parallel Macaroni String Cuts Well Costs. Petrol. Eng., vol. 29, No. 1, January 1957, pp. B-38 - B-44.

On 19 wells 2,300 to 7,500 feet deep, macaroni string parallel to tubing cemented in open hole cut costs 30 to 50 percent of conventional completion. A well-cost analysis shows a cost of $14,550 using macaroni as compared to a cost of about $21,000 using an artificial lift other than gas. Gives step-by-step of how well is completed - using macaroni strings.

Generated on 2024-09-21 17:25 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

105. GERDES, C. W. Save With This Automatic Lube System. Petrol. Refiner, vol. 3, No. 3, March 1957, pp. 192-194.

Describes an automatic lubrication system that insures positive protection against faulty lubrication at all times. States that, by using this system, a company can increase equipment-service factors more than 50 percent and thus spend fewer maintenance dollars for repairs.

106. GEROLDE, STEVEN. Spraberry Refracturing Proves Successful. World Oil, vol. 144, No. 7, June 1957, pp. 166, 171, 172, 174.

Case histories of 16 wells indicate that large-volume, high-velocity fracture treatments in Spraberry get results. On an average, a 20,000-gallon treatment using 31,500 pounds of sand costs approximately $6,800. Payout time was about 36 days and net profit at end of year, before taxes, $41,565.

107. GIVENS, HOMER C. Don't Waste That Power. Oil Gas Jour., vol. 55, No. 17, Apr. 29, 1957, pp. 177-179.

La Gloria Oil & Gas Co. found three places where power was going to waste - expanding gas, rich absorption oil passing through a high-pressure absorber, and exhaust steam. This article explains how La Gloria made efficient use of this wasted power. Cost figures are given for equipment used and savings realized.

108. _____. La Gloria Finds Wasted Power Here. Petrol. Refiner, vol. 36, No. 5, May 1957, pp. 266-268.

Contains essentially same information as reference 107.

109. GLASS, DEAN. An Economic Study of Underground Corrosion Preventive Measure. Petrol. Eng., vol. 29, No. 4, April 1957, pp. D-33 - D-35, D-38, D-40.

Article is divided into 3 parts. Part I, Typical Engineering Economics, presents a case history of a crude oil pipeline of the Pure Transportation Co. The cost of installing cathodic protection and maintenance, power costs, etc., are given. Part II, Results of Industry Survey of Pipeline Construction, presents several tables showing pipeline coating practices and costs and power costs for cathodic protection Part III, Pipeline Industry Specifications With Respect to Mill or Yard Application of Coatings and Wrapper Materials, concludes that 90 percent of companies specify coal-tar coating for pipelines.

110. GRANE, H. R., OZAWA, J. K., AND WORRELL, G. R. When to Isomerize Pentane and Hexane Fractions. Petrol. Refiner, vol. 36, No. 5, May 1957, pp. 172-176.

Generated on 2024-09-21 17:21 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Hypothetical case in this article shows that it pays to add isomerization when gasoline pool reaches 97.8 octane. Economics also show that in Pentafining it is more economical to split C_6's for isomerization when C_6 content is below 55 percent.

111. GRANT, JOHN B., AND SMITH, RAYMOND J. Use Graphs to Simplify Footing Design. Petrol. Refiner, vol. 36, No. 12, December 1957, pp. 130-132.

Presents a series of graphs that quickly enable one to determine most economical size of octagonal and square footings to use in a plant.

112. GREEK, BRUCE F., DUVAL, CLAIBORNE A., AND KALICHEVSKY, V. A. Duclayer Gasoline Process to Remove Mercaptans. Ind. Eng. Chem., vol. 49, No. 12, December 1957, pp. 1938-1944.

Describes Magnolia Petroleum Co. Duclayer process unit, and includes flowsheet. Operating costs of a 38,000-barrel-per-day unit are $2.12 cents per barrel.

113. GROPPER, FRED. Direct Operating Labor Costs in Chemical Plants. Chem. Eng. Prog., vol. 53, No. 10, October 1957, pp. 465-470.

Discusses operating labor costs in modern chemical plants. Gropper stresses idea that it is more important to emphasize incentives than paychecks. He also discusses labor standards and how wage incentives can be applied to factors other than labor.

114. GUERNSEY, E. O., AND BALL, R. M. Reactor-Irradiator for Meat. Nucleonics, vol. 15, No. 7, July 1957, p. 80.

Design considerations suggest feasibility of a system using a low-temperature reactor, a slab irradiator, and an indium sulfate blanket to process beef at 1.6 cents per pound.

H

115. HARDY, WALTER L. Acetic Anhydride. Ind. Eng. Chem., vol. 49, No. 8, August 1957, pp. 51A-52A.

Availability of raw materials determines most economical process for commercial production of acetic anhydride. Cost data for 4 different processes are given. Investment costs and operating costs provided for acetic acid oxidation process.

116. _____. Ammonium Sulfate by the Gypsum Process. Ind. Eng. Chem., vol. 49, No. 2, February 1957, pp. 57A-58A.

Discusses and compares cost of producing ammonium sulfate in this country and abroad. A complete breakdown on installed cost and production costs of such a plant is given. Concludes that gypsum process is not feasible in this country, but in other countries that have cheap gypsum and no sulfur it is profitable.

Generated on 2024-09-21 17:19 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

117. HARDY, WALTER L. Carbon Tetrachloride Manufacture. Ind. Eng. Chem., vol. 49, No. 10, October 1957, pp. 57A-58A.

Provides cost information for 2 methods of producing carbon tetrachloride - the direct-chlorination and the carbon disulfide process.

118. _____. Chlorine Manufacture. Ind. Eng. Chem., vol. 49, No. 9, September 1957, pp. 55A-56A.

Short description of diaphragm and mercury cells. Compares the unit requirements and costs of a 100-ton-per-day Cl_2 plant between two type cells.

119. _____. Formic Acid Manufacture. Ind. Eng. Chem., vol. 49, No. 7, July 1957, pp. 45A-46A.

Briefly describes formic acid process. Cost of a 7,000 ton-per-year plant is approximately $2,000,000. Tables show raw-material and production costs.

120. _____. Manufacture of Soap. Ind. Eng. Chem., vol. 49, No. 1, Part 1, January 1957, pp. 95A-96A.

Briefly reviews soap-manufacturing process. Estimated investment and processing costs are given for a 20-ton-per-day plant.

121. _____. Manufacture of Sodium Chloride. Ind. Eng. Chem., vol. 49, No. 11, November 1957, pp. 59A-60A.

Small salt plant capable of producing 35 tons of pure, dry salt per day involves a $426,000 investment. For a plant of this capacity, refining cost per ton of salt would range from $12 to $17, plus cost of feed brines.

122. _____. Packaging and Materials-Handling Costs. Ind. Eng. Chem., vol. 49, No. 4, April 1957, pp. 57A-58A.

By changing packaging material used for final product great savings can be realized. Author takes a hypothetical example and makes a cost comparison between different types of containers used for packaging product.

123. _____. Phenol Manufacture. Ind. Eng. Chem., vol. 49, No. 5, May 1957, pp. 47A-48A.

Comparative costs given for 3 commercial processes, sulfonation system and 2 chlorobenzene processes - caustic soda hydrolysis and regenerative vapor phase. A fourth method - cumene process - is discussed, but no cost figures are supplied.

Generated on 2024-09-21 17:19 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

124. HARDY, WALTER L. Plant to Produce 2,4-D Acid and Isopropyl Ester. Ind. Eng. Chem., vol. 49, No. 3, March 1957, pp. 55A-56A.

Article briefly describes manufacture of 2,4-D acid and lists tables giving raw-material costs, estimated investment costs, and estimated production costs for a 4,000-pound-per-day, 250-day-per-year plant.

125. _____. Salicylic Acid. Ind. Eng. Chem., vol. 49, No. 6, June 1957, pp. 55A-56A.

Concise discussion of salicylic acid plant; gives estimated plant and operating costs for a 1,000,000-pound-per-year plant.

126. _____. Turbulent Film Evaporators. Ind. Eng. Chem., vol. 49, No. 12, December 1957, pp. 53A-54A.

Short description of turbulent film evaporator, which has several advantages over conventional evaporators. Includes investment and operating costs.

127. HELMS, F. P. Zinc Coating. Oil Gas Jour., vol. 55, No. 14, Apr. 8, 1957, pp. 106-109.

Cost data presented for several different methods of applying zinc coating on steel for complete corrosion protection.

128. HELWIG, J. D., AND McCONOMY, H. F. How 31 Refineries Condition Cooling-Water Systems. Oil Gas Jour., vol. 55, No. 48, Dec. 2, 1957, pp. 101, 103-106.

Summarizes methods used by 31 refineries to condition cooling water. Approximate treatment cost ranges from $1 to $5 per day per 1,000 g.p.m. cooling water circulated.

129. HERRON, D. P., AND PUISHES, A. PWR and Calder Hall - How Do They Compare? Nucleonics, vol. 15, No. 6, June 1957, pp. 72-75.

Article compares American PWR reactor and British Calder Hall reactor as to which is best for economic power. Many factors affect choice of one reactor or other, such as labor costs, exchange rates, etc. An economical comparison is made between two.

130. HERSHEY, R. L., AND SCHWARTZ, C. R. Computers in Management Cost Accounting. Chem. Eng. Prog., vol. 53, No. 7, July 1957, pp. 333-337.

Discuss and cite examples of use of computers in determining unit costs for large, complex, multiproduct plants.

131. HULL, WILLIAM Q., AND EWEN, T. PINKNEY. Uranium From Gold Wastes. Ind. Eng. Chem., vol. 49, No. 1, January 1957, pp. 1-10.

500125 O - 59 - 4

Generated on 2024-09-21 17:34 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Rather complete description of process for obtaining uranium from wastes of gold reducing plants. Flow diagram for process is provided, along with some data on investment costs, etc.

132. HULL, WILLIAM W., SCHON, FRANK, AND ZIRNGIBL, HANS. Sulfuric Acid From Anhydrite. Ind. Eng. Chem., vol. 49, No. 8, August 1957, pp. 1204-1214.

Detailed description of manufacture of H_2SO_4 from anhydrite. Capital requirements and production costs and approximate labor costs are given. At present this process is not used in United States.

133. HUNTER, JAMES N., JR. Lightweight Pipe With a Thin Film Coating for Gathering Lines. Oil Gas Jour., vol. 55, No. 37, Sept. 16, 1957, pp. 130-132.

Economic comparison of coated lightweight and bare standard-weight 4-inch pipe.

I

134. INDUSTRIAL AND ENGINEERING CHEMISTRY. Save That Valuable Chlorine. Vol. 49, No. 4, April 1957, pp. 87A-88A.

A new recovery system for chlorine from "snift gas" developed by Diamond Alkali Co. Cost of recovered chlorine, including all operating and investment costs, is estimated at less than $20 per ton.

J

135. JACKSON, J. O., AND BIGOS, JOSEPH. Painting Steel Structures in Petroleum Refineries. Petrol. Eng., vol. 29, No. 7, July 1957, pp. C-44 - C-46.

Contains essentially same information as reference 14.

136. JELEN, F. C. Consider Income Tax in Cost Analysis. Chem. Eng., vol. 64, No. 9, September 1957, pp. 271-275.

Presents a series of equations that enable one to calculate accurately effect of income tax on capital investment and on life of article A graph and a chart are provided to allow calculations for different interest rates and different writeoff times. Gives several examples.

137. JOHN, A. Good Tube Maintenance Tools Cut Costs. Petrol. Refiner, vol. 36, No. 11, November 1957, pp. 317-320.

Briefly reviews tools especially designed for boiler and heat-exchanger-tube maintenance that make cleaning and repair easy and cut down time for repair. No cost figures are given.

Generated on 2024-09-21 17:33 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

K

138. KAHLER, F. H., AND REENTS, A. C. Water Demineralization Costs. Chem. Eng., vol. 60, No. 1, January 1957, pp. 206-210.

Describes 7 different ion-exchange methods for demineralizing water. Nine graphs are included to provide cost information for 2 bed systems, mixed-bed exchange, single-bed - mixed-bed combination, and four-bed arrangement. Also gives comparative costs for various deionizing systems.

139. KALLMAN, DONALD. Heat-Transfer Economics as Related to Design of Nuclear Fuel Elements. Chem. Eng. Prog., vol. 53, No. 6, June 1957, pp. 289-292.

Discusses fuel-fabrication costs for a 250-megawatt pressurized-water reactor fueled with slightly enriched uranium oxide in rod form, clad with stainless steel. Several graphs showing effects of irradiation level, heat flux, and reactor core diameter on fabrication expense are presented and explained.

140. KATELL, SIDNEY, AND FABER, JOHN H. An Economic Evaluation of Cooling Water Costs. Cost Eng., vol. 2, No. 3, July 1957, pp. 70-76.

Presents cost data for establishing capital and operation costs for cooling water systems for specified conditions. These conditions include a wet-bulb temperature of 75° F., a 5° and 10° F. approach, and a Δt range varying between 15° and 35° F.

141. KATELL, SIDNEY, AND McGEE, J. P. An Economic Study of Air-Compression Costs. Cost Eng., vol. 2, No. 1, January 1957, pp. 5-9.

Provides operating cost data for various sizes of air compressors.

142. KATY, W. E. Electric-Membrane Demineralization. Chem. Eng. Prog., vol. 53, No. 4, April 1957, pp. 190-193.

Describes a process by which 2 million gallons per day of brackish water, containing 2,000 p.p.m. dissolved solids, can be demineralized at a cost of about $0.42 per thousand gallons. Other investment and operating costs are given for water with various dissolved solid content.

143. KEEN, R. E. Drilling the World's Hottest Well. Petrol. Eng., vol. 29, No. 11, October 1957, pp. B-21 - B-29.

Relates procedure used for drilling a 15,107-foot well near Laredo, Tex. Bottom-hole temperature exceeded 460° F., a record high; however, cost of hole was not out of line with other exploratory wells drilled in hard-rock country. Total cost of well given at $534,200.

144. KELLY, HAROLD S. Automatic Custody Transfer of Crude Oil From the Producer's Viewpoint. Petrol. Eng., vol. 29, No. 2, February 1957, pp. B-34 - B-38.

Generated on 2024-09-21 17:19 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

LACT (Lease Automatic Custody Transfer) has 3 significant advantages: (1) Lower initial investment; (2) better and safer utilization of manpower and reduction in monotonous details; and (3) increased conservation of natural resources. Investment costs decrease proportionately for larger lease systems.

145. KENTON, JOHN E. PAR Homogeneous Unit Gains; Corrosion Seems Licked. Nucleonics, vol. 15, No. 9, September 1957, pp. 166-184.

Discusses development work being carried out on PAR (Pennsylvania Advance Reactor). Although corrosion was very great at start it soon leveled off and appears to be no problem at present. Some capital and operating costs are provided.

146. KIERNAN, FRANK. Building Costs. Cost Eng., vol. 2, No. 2, April 1957, pp. 55-58.

Series of tables presenting cost data for industrial buildings. Tables note cost of wall construction, floors, roofs, and foundations.

147. KLIMA, B. B. Packless Pumps. Cost Eng., vol. 2, No. 4, October 1957, pp. 88-105.

This article lists costs of several types of packless pumps and discusses how these pumps compete with conventional pumps for many applications.

148. KNIGHT, R. L. Air Drilling in the Texas Panhandle. World Oil, vol. 144, No. 4, March 1957, pp. 106-107, 109, 122.

Reviews air-drilling techniques in Texas. Although still limited in use due to water flows, air drilling is affording large savings in both time and money where it is possible to use this method. Savings on a 2,800-foot well average about $1,600.

149. KRANE, H. G., AND KANE, E. W. Isomate Process Adapted to Motor Fuel. Petrol. Refiner, vol. 36, No. 5, May 1957, pp. 177-182.

World War II isomerization process for making average has been improved for upgrading pentanes and hexanes. A cost case is developed for isomerization before catalytic reforming potential is reached.

L

150. LA BOUFF, JOHN J. Drilling Costs in California. Part 2. - Operators Foresee Added Costs. Petrol. Eng., vol. 29, No. 7, July 1957, pp. B-90, B-95, B-96, B-98, B-102.

Drilling costs in California are $5 to $6 more per foot than in other parts of country. There are several reasons for their higher costs; these are discussed by La Bouff. The average well cost (4,000-6,000 feet) has increased from $37,200 to $51,400 from 1947 to 1956.

Generated on 2024-09-21 17:19 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Future development of reserves in California will come by: (1) Drilling deeper holes; (2) developing proved or semiproved reserves in residential areas; and (3) discovering and developing tideland reserves. This indicates that future costs will rise.

151. LA BOUFF, JOHN J. What It Costs to Drill Wells in California. Part 2. Oil Gas Jour., vol. 55, No. 38, Sept. 23, 1957, pp. 103-105.

Contains essentially same information as reference 150.

152. LANE, MARVIN E. Mining Methods and Costs at the Hayden Creek Mine of St. Joseph Lead Co., St. Francois County, Mo. Bureau of Mines Inf. Circ. 7781, 1957, 33 pp.

Discusses mining methods and costs at Hayden Creek lead mine.

153. LEDERMAN, PETER B., AND WILLIAMS, BRYMER. How Close Are We to Commercial Liquefaction of Natural Gas? Oil Gas Jour., vol. 55, No. 39, Sept. 30, 1957, pp. 97-102.

This study shows all costs for liquefying natural gas at cheap sources, plus shipping costs to New York and to North Sea. Payout could be as low as 3 years.

154. _____. Will Liquefaction of Natural Gas Pay? Petrol. Refiner, vol. 36, No. 8, August 1957, pp. 169-175.

Contains essentially same information as reference 153.

155. LEE, CHESMAN A. Cutting Cost With Multiwall Bags. Chem. Eng., vol. 64, No. 4, April 1957, p. 296.

Discusses different means of packing materials in paper bags to reduce breakage and spillage.

156. LEESE, J. P. Building Roads and Staking Locations Are Important Cost Factors. World Oil, vol. 145, No. 2, Aug. 1, 1957, pp. 40-41, 44-45.

Considers many difficulties encountered in staking locations in the San Juan Basin. Well-location survey costs vary from $75 to $500 or $600, depending on location; average cost of road building is about $2,000 per mile.

157. LESLIE, C. F. Which Prime Mover Should Be Used For Your Station - Engine or Electric? Oil Gas Jour., vol. 55, No. 34, Aug. 26, 1957, pp. 131-133.

An economic comparison between engine and electric prime movers. One table gives total cost after 20 years' life for 100-percent and 75-percent capacity.

Generated on 2024-09-21 17:31 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

158. LICKER, MARGARET R. Mining, Processing, and Costs - Idaho Almaden Mercury Mine, Washington County, Idaho. Bureau of Mines Inf. Circ. 7800, 1957, 33 pp.

Discusses open-pit mining operations and furnacing plant used at Idaho Almaden mercury mine. A series of tables gives mining and treating costs and labor efficiency.

159. LOVE, FRANK H. 15,000-hp. Single-Unit Station. Petrol. Eng., vol. 29, No. 9, August 1957, pp. D-20 - D-26.

Describes completely different type of compressor station of the Texas Eastern Transmission Corporation at Mount Pleasant, Tenn. This is a single-unit station consisting of a 15,000-hp. synchronous electric motor driving a single-stage centrifugal compressor through a 900- to 6,506-r.p.m. speed increaser. Total cost of station was $1,710,530; cost per installed horsepower $114.04. Other features of station include: Across the line starting; a single-stage compressor that develops a compression ratio of 1.5:1, highest yet achieved; electronic surge control; and low operating costs.

160. LOW, FRANK H. Are You Overlooking Nuclear Radiation? Oil Gas Jour., vol. 55, No. 5, Feb. 4, 1957, pp. 121-124.

Discusses various ways in which radiation can be used in various tests, etc., and states that costs for certain radiation equipment are relatively low.

M

161. McGARVEY, FRANK X. Ion Exchange as a Unit Operation. Chem. Eng., vol. 64, No. 12, December 1957, pp. 255-260.

Compares batch and continuous processes of ion exchange and different applications of ion exchange in water conditioning, uranium, recovery, rare-earth separation, pharmaceuticals and organic industry, and recovery of waste metals. Article explains how to find optimum cycle by using an economic balance. Gives typical operating costs.

162. McGHEE, ED. How to Get Cheap Daily Tests on Every Well. Oil Gas Jour., vol. 55, No. 14, Apr. 8, 1957, pp. 110-111.

Describes a one-well measuring separator developed by Shell Oil Co., which can be installed for as little as $300. Separator measures out 1/4 barrel each time it dumps, and a counter keeps track of number of dumps.

163. MACY, F. D. How to Evaluate a Plant Layout. Petrol. Refiner, vol. 36, No. 7, July 1957, pp. 162-168.

Generated on 2024-09-21 17:22 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Presents a method of evaluating a layout which immediately tells one if it represents most economical use of materials.

164. MALLORY, H. E. How Low-Solid Mud Can Cut Drilling Costs. Petrol. Eng., vol. 29, No. 4, April 1957, pp. B-21 - B-24.

Describes use of low-solid mud, which includes these advantages: (1) Increased penetration rates; (2) decreased number of bits; (3) reduced water on rig; (4) lower overall mud costs; and (5) more rapid drilling. This low-solid mud cut drilling costs from $9.06 to $6.17 a foot in one field in Texas. Other cost data are given.

165. MARGO, B. A. New System for Maintenance Control. - Part 1. Petrol. Refiner, vol. 36, No. 5, May 1957, pp. 235-237.

Discusses a method that allows calculation of the limit of tolerable maintenance, so that it is easy to tell when maintenance costs become excessive.

166. _____. New System for Maintenance Control. - Part II. Petrol. Refinery, vol. 36, No. 6, June 1957, pp. 171-174.

This part considers maintenance budget and explains its role in this new system.

Other factors covered are methods of calculating wear points for corrosion, recording maintenance costs, considering overhead of maintenance department, calculation of wear factors per unit and of average wear factors for the plant, etc. Gives some examples.

167. MASSAD, A. H., AND HOLMES, B. G. Cathodic Protection of Offshore Structures. Petrol. Eng., vol. 29, No. 5, May 1957, pp. B-73, B-74, B-76, B-80.

Presents various means by which corrosion is checked on offshore structures. Usually, part of structure above the water is protected by a paint system, splash zone is protected by monel sheathing, and underwater section is given protection. Cost data for various types of cathodic protection are given. Annual cost of a magnesium anode system is slightly more than the annual cost of an equivalent impressed current system because of its relatively short service life. However, in many locations there is no available voltage for cathodic protection.

168. MAXWELL, VICTOR W. Liquid-Type Dump Bailer. Petrol. Eng., vol. 29, No. 2, Feb. 1957, pp. B-102, B-104, B-106.

Describes a liquid dump bailer that can easily place a corrosion inhibitor at any point in a gas or oil well. Average cost per unit production is given as 5.77 mills per barrel for oil wells and 38 cents per million cubic feet for gas wells in Louisiana and Texas. However, costs vary widely from one well to next.

Generated on 2024-09-21 17:21 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

169. MAYER, F. M. Ways to Reduce Oilfield Equipment and Service Costs. Mutual Problems of Purchasers and Sellers. Petrol. Eng., vol. 29, No. 13, December 1957, pp. B-35 - B-36.

List of 8 ways in which buyers can help reduce costs of oil production.

170. MAYO, H. C., AND DAZE, R. E. Turbine or Motor Drives? Petrol. Refiner, vol. 36, No. 8, August 1957, pp. 110-115.

Discusses important factors that should be considered when selecting large-horsepower, high-speed prime movers. Operating and investment costs are fully discussed, and cost figures are given for turbine drives.

171. MENKE, JOHN R., LEWIS, W. B., LANE, JAMES A., STARR, CHAUNCEY, AND SHOUPP, WILLIAM E. These Five Experts Discuss Enriched vs. Natural U. Nucleonics, vol. 15, No. 6, June 1957, pp. 68-71.

Notes advantages and disadvantages of natural and enriched uranium. Gives some cost information.

172. MILLS, HERBERT E. Use Index to Estimate Cost of Belt Conveyers. Chem. Eng., vol. 64, No. 9, September 1957, pp. 242-244.

Supplies graphs and tables to provide accurate cost figures for belt conveyers; costs of driver; costs of additional components and labor time to install conveyers. Changing economic conditions can be easily compensated.

173. MONACK, M. L., SHOCKLEY, H. W., AND ALLEN, J. R. New Ways to Reduce Painting Costs. Petrol. Refiner, vol. 36, No. 1, January 1957, pp. 125-128.

A saving of 10 to 30 percent on paint jobs can be realized, using these methods: (1) Design with less surface area; (2) tapes for auxiliary protection; (3) hot-spray method to apply coatings; and (4) high-solids paint with fewer coats. Some cost data are given for different types of protective coatings.

174. MOORE, F. A. Lower Your Pipeline Pumping Costs. Oil Gas Jour., vol. 55, No. 34, Aug. 26, 1957, pp. 100-101.

Pipeline pumping-station power and maintenance costs can be reduced from 10 - 25 percent by use of variable-speed drive. No actual cost data are given.

175. MORRIS, JAMES F. Custody Transfer With Positive-Displacement Meters. Petrol. Eng., vol. 29, No. 5, May 1957, pp. D-68, D-69, D-72, D-76.

Describes an installation that receives oil from pipelines through a positive-displacement meter. Equipment and installation cost was less than $4,000, and a minimum of maintenance is required.

Generated on 2024-09-21 17:22 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

176. MORRISEY, NORMAN S. Active Fields Report Drilling Data. Oil Gas Jour., vol. 55, No. 41, Oct. 14, 1957, pp. 167-217.

Information on contract-drilling costs, casing program, bit requirement, pay zone, etc., for wells in all sections of United States and Canada.

177. _____. Drilling Contractors Offer Best Buy in the Oil Business. Oil Gas Jour., vol. 55, No. 1, Jan. 7, 1957, pp. 123-125.

Oil companies today get 25 percent more hole drilled for same money as they did 5 years ago. Article presents a list of representative field prices in United States and Canada for 1956.

178. _____. Where Will Exploration Pay Off? Oil Gas Jour., vol. 55, No. 13, Apr. 1, 1957, pp. 105-108.

Rising costs of oil findings have forced management to be more selective in exploration work. Compares different parts of country as to chance of finding oil and presents cost information showing why oil is more costly to find.

179. MULCAHY, P. H. Rietz Disintegrator. Cost Eng., vol. 2, No. 2, April 1957, pp. 49-54.

Considers different types of Rietz disintegrators, including power requirements. Graph gives approximate cost of different size units; however, there is a wide range in price due to difference in construction material and special design features.

180. MULLOWNEY, J. F. Which CO_2 Removal Scheme is Best? Petrol. Refiner, vol. 36, No. 12, December 1957, pp. 149-152.

Economic comparison of 7 different processing schemes for removing carbon dioxide from gas streams. The 7 processes follow: (1) Aqueous monoethanolamine; (2) aqueous diethanolamine followed by caustic treating; (3) hot potassium carbonate followed by aqueous monoethanolamine; (4) hot potassium carbonate followed by aqueous diethanolamine, then caustic scrubbing; (5) hot potassium carbonate followed by aqueous ammonia treating and caustic scrubbing; (6) water scrubbing, followed by aqueous monethanolamine; and (7) aqueous ammonia followed by caustic scrubbing. Plant investment and operating costs for each of these processes are given.

N

181. NELSON, C. R. Lubrication Scheduling Cuts Costs. Petrol. Refiner, vol. 36, No. 3, March 1957, pp. 189-191.

Describes lubrication program that trims down time, labor, and materials and increases plant profit. No actual cost data given.

Generated on 2024-09-21 17:21 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

182. NELSON, W. L. Cost-Imating. Oil Gas Jour.

Series of cost-estimating articles printed in Oil and Gas Journal. They show current cost indexes for equipment, plants, and associated items.

Ref. No.	Title	Vol.	No.	Date	Page
182-1	Costs Have Been Rising Sharply	55	1	Jan. 7, 1957	131
182-2	Cost of Treating and Cooling Equipment	55	1	Jan. 7, 1957	131
182-3	Refinery Construction Costs Are Rising Rapidly	55	4	Jan. 28, 1957	261
182-4	Construction Wages and Equipment Rental Rates	55	8	Feb. 25, 1957	148
182-5	Overall Plant Costs (Distillation, Desulfurization)	55	10	Mar. 11, 1957	193
182-6	Construction Costs Are Undergoing Inflation	55	13	Apr. 1, 1957	203
182-7	Overall Plant Costs, Refineries, Reforming, etc.	55	13	Apr. 1, 1957	204
182-8	Overall Plant Costs, Cracking, Natural Gasoline, etc.	55	15	Apr. 15, 1957	139
182-9	Overall Plan Costs, Sulfur, Ammonia, etc.	55	18	May 6, 1957	143
182-10	Overall Plant Costs, Misc.	55	19	May 13, 1957	154
182-11	How Complexity of Operation Affects Costs of Refineries	55	21	May 27, 1957	155
182-12	Refinery Processing Since 1920 and Cost of Refineries	55	23	June 10, 1957	123
182-13	Cost of Refineries Throughout the World	55	25	June 24, 1957	174
182-14	Still More Inflation	55	25	July 1, 1957	150
182-15	Summarizing the Cost of Refineries	55	27	July 8, 1957	141
182-16	What Is Effect of Size on Costs	55	29	July 22, 1957	113
182-17	Construction Costs	55	31	Aug. 5, 1957	101
182-18	Current Costs Indexes	55	35	Sept. 2, 1957	164
182-19	Index of Cost-Imating Data	55	37	Sept. 16, 1957	237-238
182-20	Itemized Cost Indexes	55	40	Oct. 7, 1957	169

183. NELSON, W. L. Nelson Refinery Construction Index. Oil Gas Jour.

A series of articles appearing monthly in Oil and Gas Journal (first issue of each month). Included are cost indexes for pumps, compressors, etc.; electrical machinery; internal-combustion engines; instruments; heat exchangers; miscellaneous equipment average; material component; labor component; and refinery construction.

Generated on 2024-09-21 17:19 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Ref. No.	Vol.	No.	Date	Page
183-1	55	1	Jan. 7, 1957	108
183-2	55	5	Feb. 4, 1957	124
183-3	55	9	Mar. 4, 1957	93
183-4	55	13	Apr. 1, 1957	208
183-5	55	18	May 6, 1957	136
183-6	55	22	June 3, 1957	117
183-7	55	26	July 1, 1957	127
183-8	55	31	Aug. 5, 1957	87
183-9	55	35	Sept. 2, 1957	146
183-10	55	40	Oct. 7, 1957	143
183-11	55	44	Nov. 4, 1957	148
183-12	55	48	Dec. 2, 1957	95

184. NELSON, W. L. Questions on Technology. Oil Gas Jour.

A series of technological questions and answers is discussed in Oil and Gas Journal by W. L. Nelson.

Ref. No.	Title	Vol.	No.	Date	Page
184-1	How Refinery Size Affects Profit Picture	55	6	Feb. 11, 1957	133, 135, 137
184-2	What Price Cat-Cracking Plants?	55	9	Mar. 4, 1957	121
184-3	Indexes of Cost of Pipe and Plate	55	9	Mar. 4, 1957	121
184-4	Cost of Forgings	55	11	Mar. 18, 1957	156
184-5	How Much Fuel Do Refineries Use?	55	14	Apr. 8, 1957	127
184-6	References to Costs of Transportation	55	16	Apr. 22, 1957	149
184-7	Refinery-Fuel Costs for Foreign Refineries	55	20	May 20, 1957	201
184-8	Cost of Dewaxing Plants, Revised	55	24	June 17, 1957	187
184-9	Projection of Cost Indexes	55	28	July 15, 1957	116
184-10	Correction: Cost of Polyethylene Plant	55	28	July 15, 1957	116
184-11	What Should Electric Power Cost?	55	32	Aug. 12, 1957	131
184-12	Cost of Ethylene Plants	55	38	Sept. 23, 1957	133
184-13	What's the Average Cost of Tanker Transportation?	55	42	Oct. 21, 1957	134-135
184-14	Cost Indexes of Heat Exchangers	55	43	Oct. 28, 1957	133
		55	43	Oct. 28, 1957	133
184-15	Tabulated Values of Construction Costs Index	55	46	Nov. 18, 1957	245
184-16	How Complexity Boosts Refinery Costs	55	49	Dec. 9, 1957	137-138
184-17	Wages for Various Craftsman	55	51	Dec. 23, 1957	86

Generated on 2024-09-21 17:27 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

185. NEWTON, EDMUND C. Maintenance-Cost Controls. Petrol. Eng., vol. 29, No. 6, June 1957, pp. C-22 - C-27, C-30, C-31.

Describes method used by Atlantic Refining Co. to reduce maintenance costs. Key to this method is standardized work planning. It makes good use of charts and weekly reports to insure maximum utilization of maintenance manpower.

186. NITCHIE, E. B. Cost-Control Systems. Chem. Eng., vol. 64, No. 10, October 1957, pp. 233-248.

Exhaustive discussion on operation of a cost-control system, how to set up such a system, and use of system. Some advantages gained from cost-control system include: (1) Reduces costs and increase profits; (2) maintains a set cost level for process operations; (3) forecasts more accurate cost information; (4) establishes new product prices; and (5) determines when to replace equipment more exactly.

187. NOEBELS, HENRY J. Continuous Analyzers, Key to Process Automation. Petrol. Eng., vol. 29, No. 10, September 1957, pp. C-24 - C-26, C-28, C-29.

Reviews characteristics and costs of these 10 continuous stream analyzers:

1. Infrared.
2. Gas chromatography.
3. Ultraviolet.
4. Electrolytic hygrometry.
5. Flow colorimetry.
6. Refractive index.
7. Dielectric constant.
8. pH and direct ion.
9. Mass spectroscopy.
10. Oxygen.

Instrument, installation, and sample-system costs are listed.

188. NORDEN, R. B. Plastics Vie With Metals. Chem. Eng., vol. 64, No. 11, November 1957, pp. 296-304.

Cost per foot of various piping materials is presented. Materials included are polyvinyl chloride, carbon steel, galvanized iron, aluminum, wrought iron, lead, brass, Monel, and stainless steel types 304 and 316.

189. _____. Pressure Concrete Pipe Handles Corrosives. Chem. Eng., vol. 64, No. 8, August 1957, pp. 300-302.

States that reinforced-concrete pipe can withstand pressure of 50-300 p.s.i. and is competitive with steel pipe for large volumes of liquid under pressure. A comparison of cost per foot for concrete and steel pipe follows:

Generated on 2024-09-21 17:21 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Inches:	Steel	Concrete
16	$12.50	$ 9.00
30	23.50	13.50
48	38.00	25.00

190. NORTHUP, M. S. Refiners Move in on Corrosion. Oil Gas Jour., vol. 55, No. 9, Mar. 4, 1957, pp. 108-109.

Corrosion costs petroleum industry about $300,000,000 a year, or, in terms of cost per barrel of throughput, 11 to 14 cents.

Brief summation of how 18 different companies handle corrosion problem. No actual cost data are presented.

191. NUCLEONICS. EBWR Power Costs. Vol. 15, No. 7, July 1957, pp. 58-59.

Initial power costs for this first boiling-water plant are high, but operation at higher power levels and with heavy water will greatly reduce costs. Table gives EBWR capital costs.

192. _____. Evaluation of a Homogeneous Reactor - Economic Analysis. Vol. 15, No. 10, October 1957, pp. 69-71.

Economic analysis for a 15,000-kw. nuclear power station. Reactor was single-fluid aqueous homogeneous two-region breeder that operates on the Th-U^{233} cycle. Maintenance and fuel cost are given, along with plant investment charge.

193. _____. Foods, Plastics Dominate Electron-Beam Symposium. Vol. 15, No. 11, November 1957, pp. 180-191.

Radiation probably will pay its first significant dividends in processing plastics and preserving food. Some cost information, such as purchase price, operating cost, etc. is included..

194. _____. Hinkley Point. Britain's - and World's - Biggest Yet. Vol. 15, No. 11, November 1957, pp. 98-88.

Drawings of Hinkley Point Power Station, along with various dimensions and operating data. Total plant cost is $168 million and estimated power cost is 7 - 7.6 mills per kilowatt-hour.

195. _____ Moderator Control Extends Burnup. Vol. 15, No. 8, August 1957, pp. 66-67.

Shim control in water reactors can be achieved by diluting D_2O with H_2O. A D_2O reprocessing plant is required, but calculation for a hypothetical 500-megawatt powerplant shows that distillation plant would cost only $1.5 million to build and $150,000 per year to operate.

Generated on 2024-09-21 17:19 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

196. NUCLEONICS. Significance of SRE. Vol. 15, No. 12, December 1957, p. 40.

Part of a long report on sodium-reactor experiment. This section of report includes cost data for project.

O

197. OIL AND GAS JOURNAL. Calculating Waterflood Costs. Vol. 55, No. 38, September 23, 1957, p. 113.

Two charts provide rapid method for finding cost of water for flooding an oil reservoir.

198. _____. Newest Compressor-Station Techniques. Vol. 55, No. 29, July 22, 1957, pp. 73-80.

Brief description of 4 compressor stations on a Texas Eastern pipeline from Texas to New Jersey. Cost of each station and cost per horsepower of each station are given, along with personnel requirements.

199. _____. Oil Hits Back. Vol. 55, No. 11, March 18, 1957, Special Section (begins opposite p. 108).

A 16-page special report by editors of Oil and Gas Journal defending industries' position against Government price regulations and other changes. Many graphs and figures are included, showing how exploration, producing, and refining costs have increased in last 9 years.

200. _____. This Truck-Loading Rack Fights Fire Hazards. Vol. 55, No. 23, June 10, 1957, pp. 100, 102.

Describes new truck-loading rack at Shell's Wilmington refinery, which features several safety devices. Cost of rack was approximately $150,000.

201. OLDS, E. B., AND PARSONS, E. W. Methods and Costs of Deepening the Crescent Shaft, Bunker Hill & Sullivan Mining and Concentrating Company, Kellogg, Shoshone County, Idaho. Bureau of Mines Inf. Circ. 7783, 1957, 19 pp.

Describes methods and costs of deepening three-compartment underground shaft in the Crescent lead-zinc mine. Shaft was sunk 2,000.5 feet at a rate of 7.1 feet per operating day and at a total direct cost for sinking of $205.20 per foot.

202. OSBORN, OLIVER, SCHRIEBER, C. F., BROOKS, W. B., JORGENSEN, R. C., AND DOUGLAS, BURKE. Cathodic Protection Handbook. Petrol. Refiner, vol. 36, No. 6, June 1957, pp. 116-128.

Special report on cathodic protection, how it works, where to install it, and how much it costs. Last page of this report goes briefly into economics of cathodic protection. A table gives some figures for cathodic protection costs with magnesium anodes.

Generated on 2024-09-21 17:19 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

P

203. PALAZZO, D. F., SCHREINER, W. C., AND SKAPERDAS, G. T. Low-Temperature Recovery of Hydrogen From Refinery Gases. Ind. Eng. Chem., vol. 49, No. 4, April 1957, pp. 685-688.

Describes low-temperature hydrogen-recovery process, including a flowsheet. Investment cost of a 10,000,000-standard-cubic-feet-per day recovery unit would be around $810,000. Also summarizes processing costs.

204. PEAK, R. F., AND DAVID, M. M. Cation Exchange Equipment. Chem. Eng. Prog., vol. 53, No. 1, January 1957, pp. 37J - 40J.

Series of graphs giving cost data for all types of ion-exchange equipment. Systems covered include high-capacity resin, medium-capacity resin, synthetic zeolite, solo-valve units, multiple-valve units, single-bed units, and duplex-bed units. Also given are costs of automatic controls and their installation costs.

205. PENICK, DUDLEY P. Is Ethane From Natural Gas Economical? Petrol. Refiner, vol. 36, No. 10, October 1957, pp. 108-112.

A general economic study of the recovery of ethane from natural-gas streams. Figures indicate that investment is moderate and payout time short.

206. PETROLEUM ENGINEER. Gasoline From Mineral Oil. Vol. 29, No. 10, September 1957, pp. E-18 - E-20.

Briefly describes mining operation, pipeline operation, and refinery operation of first privately financed commercial operation to produce high octane gasoline from a solid hydrocarbon, gilsonite ore. The cost of the entire installation, including a 72-mile pipeline from the mines to refinery, is over $16,000,000.

207. _____. New Automatic Gasoline Adsorption Unit. Vol. 29, No. 9, August 1957, p. C-12.

Very brief description of fully automatic gasoline adsorption unit installed on a gasline in Texas. Unit recovers liquid hydrocarbon from lean gas at an operating cost of about 15 cents per barrel of raw recovered gasoline. Cost of unit ranges from $800 to $1,400 per barrel daily recovery capacity. Market price for raw gasoline is $3.20 per barrel; thus, a 40-barrel-per-day unit would pay for itself in about 2 years.

208. _____. Pneumatic LACT System Trims Labor, Maintenance Costs. Vol. 29, No. 1, January 1957, pp. B-104 - B-105.

Describes Stanolind Oil & Gas Company's new lease automatic custody transfer (LACT) system. On many consolidated leases, unit will allow further reduction in tankage facilities and greatly reduce labor and maintenance. However, device is practical only where much automatic equipment is already in use.

Generated on 2024-09-21 17:19 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

209. PETROLEUM ENGINEER. The Rise and Fall in Contract Drilling. Vol. 29, No. 4, April 1957, pp. B-96 - B-98.

Presents graph comparing drilling costs from 1941 through 1956.

210. _____. When Should Equipment Be Replaced? Vol. 29, No. 3, March 1957, pp. D-56 - D-57.

Method by which it is possible to calculate best time to replace equipment, based on cost of major repairs, overhauls, productivity, availability, and capital decline for each year. Includes work sheet for determining economic life of truck-type tractors.

211. PETROLEUM PROCESSING. Amoco's Latest - Built for High Yields. Vol. 12, No. 4, May 1957, pp. 216-219.

Describes Amoco's new 35,000-barrel-per-day refinery at Yorktown, Va. Cost of plant is given as $35 million.

212. _____. Granular Ammonium Nitrate. Vol. 12, No. 9, September 1957, pp. 171-173.

Flowsheet plus brief discussion of single-step manufacture of ammonium nitrate containing any desired water content. Cost of 225-ton-per-day plant is estimated as $1 to $1.25 million.

213. _____. Olefin-Isobutane Alkylation. Vol. 12, No. 8, August 1957, pp. 77-79.

Flowsheet and very brief discussion of olefin-isobutane alkylation using Phillips' HF catalyst process. Table summarizes direct operating costs.

214. _____. Sulfuric Acid Alkylation. Vol. 12, No. 4, April 1957, pp. 107-109.

Flowsheet and short discussion of sulfuric acid alkylation, using Kellogg cascade reactor. Investment and operating costs are included.

215. PETROLEUM REFINER. American Oil Company's New Yorktown Refinery. Vol. 36, No. 6, June 1957, pp. 155-157.

Concise description of American Oil's new 35,000-barrel-per-stream day refinery. Plant is laid out to permit great expansion, since Amoco hopes to double its capacity in 5 years. Cost of refinery is approximately $35 million.

216. _____. Case for Upgrading Natural Gasoline. Vol. 36, No. 7, July 1957 pp. 187-189.

Generated on 2024-09-21 17:21 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Condensation of paper[7/] presented before NGAA. Article presents information on cost of raising octane number of natural gasoline by catalytic reforming and isomerization.

217. PETROLEUM REFINER. Is Underground Storage Competitive? Vol. 36, No. 10, October 1957, pp. 160-161.

Cost of construction of both aboveground and underground storage is calculated directly from charts. Points of economic competition can be readily found. Underground storage is more economical when very large quantities are to be stored.

218. _____. Maintenance Costs Drop. Vol. 36, No. 1, January 1957, p. 174.

Six graphs plot maintenance costs as a percentage of replacement value versus years for operating plant and catalytic cracking of small, medium, and large refineries. Same information is also included for natural-gasoline and petrochemical plants. These graphs show a decrease in maintenance costs.

219. PETTIT, ROBERT F., JR., CALHOUN, WILLIS A., AND REYNOLDS, BURTON M. Mining and Milling Methods and Costs, Ozark Ore Co., Iron Mountain Iron-Ore Mine, St. Francois County, Mo. Bureau of Mines Inf. Circ. 7808, 1957, 46 pp.

Iron Mountain iron-ore plant is notable for its successful transition from an open-pit development to a highly mechanized underground operation. This report describes mining and milling methods used in mine. Tables give a complete breakdown on costs.

220. PICHLER, H., CHERVENAK, M., JOHNSON, C. A., SZE, M. C., AND CAMPAGNOLO, J. F. The "H-Oil" Process. Oil Gas Jour., vol. 55, No. 39, Sept. 30, 1957, pp. 109-111, 113.

Describes new "H-Oil" process, which hydrogenates heavy residual stocks into useful products. Includes economic study for a 5,000-barrel-per-stream-day and a 14,000-barrel-per-stream-day plant. This study indicates an investment of $4,200,000 and $11,200,000, respectively, with a payout time for each of 1.4 years.

221. _____. This New Process Handles Residuals. Petrol. Refiner, vol. 36, No. 9, September 1957, pp. 201-204.

Contains essentially same information as reference 220.

222. PIERCE, DAVID E. Maintenance Comparisons by Points. Ind. Eng. Chem., vol. 49, No. 5, May 1957, pp. 55A-56A.

7/ Sutherland, R. E., and Belden, D. H., Processing Natural Gasoline Components by Penex and Platforming: NGAA, Houston, Apr. 26, 1957.

Generated on 2024-09-21 17:23 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Discusses methods by which maintenance and overhead of several companies can be compared. Cost of maintenance and overhead is figured on four different bases: (1) Per 1,000-kw.-hr. of power used; (2) per $1,000 sales and transfer; (3) per $1,000 plant investment; and (4) per $1,000 gross profit. This seems like a very good method for comparing maintenance costs.

R

223. RADFORD, LEROY. Air Drilling Pays Dividends. Petrol. Eng., vol. 29, No. 1, January 1957, pp. B-21 - B-27.

Describes air-drilling technique developed by Magnolia Petroleum Co. which can have results in direct saving on drilling cost up to $5,800. This technique permits faster penetration with fewer bits. Presents cost comparison of mud versus air drilling.

224. RAGLAND, DOUGLAS. Effects of Modern Drilling Technology on Well Costs. Petrol. Eng., vol. 29, No. 1, January 1957, pp. B-33 - B-36.

Discusses how extensive research and technological improvements have kept well costs same as in 1950. Technological improvements discussed include jet hydraulics, chest bits, diamond drilling, air and gas drilling, and slim-hole drilling. All these have helped reduce drilling costs. Some cost comparisons are made pointing out these savings.

225. RALPH, HENRY D. What Does It Cost to Find Gas? Oil Gas Jour., vol. 55, No. 10, Mar. 11, 1957, pp. 120-125.

Presents a case for oil and gas producers in their battle with Federal Power Commission over price regulations. Includes several graphs showing costs of finding and producing gas. Reasons are given why rates should not be closely controlled.

226. REED, PAUL. Three Kinds of Pipe Protection Are Being Applied on NGP's Major Project. Oil Gas Jour., vol. 55, No. 49, Dec. 9, 1957, pp. 98-100.

Natural Gas Pipeline Co. is using coal tar, asphalt, and plastic tape on different sections of a 350-mile main line in Texas. Estimated costs of protection materials are: Asphalt - $1,200 per mile; coal tar $1,700 per mile; and plastic tape - $3,300 per mile. However, application of plastic tape is only 55 percent that of other 2; thus, all 3 methods are competitive.

227. REHBERG, JEROME A. Two Years of Air Drilling Evaluated. Part 1. World Oil, vol. 145, No. 1, July 1957, pp. 103-106.

Air drilling in Appalachian area has proved to be a great time and money saver. Although Rehberg presents no actual cost data, he does give a percentage breakdown of daily and total costs for operating air for 1 year.

Generated on 2024-09-21 17:22 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

228. RELF, KENNETH E. Counting Thousands of Samples in 12 Hours - Automatically. Nucleonics, vol. 15, No. 4, April 1957, pp. 86-89.

Neutron-distribution plots can be produced quickly and accurately by using foil and wire neutron activation, combined with automation of counting, data processing, and machine computation. Includes approximate costs for components of the automatic system.

229. ROSS, J. E. Incentive Contracts Do Save Money. Petrol. Refiner, vol. 26, No. 1, January 1957, pp. 187-188.

Describes method used by one large petrochemical plant to control construction costs. It has been found that lump-sum contracts show best efficiency.

230. ROY, T. R. VICK. Data-Handling Systems. Chem. Eng., vol. 64, No. 6, June 1957, pp. 274-279.

Roy gives following cost per pound for data-logging equipment: Automatic process data logger, $300-600; multipoint recording potentiometer, $100-200; miniature electronic recorder, $150-250; pneumatic recorder, $100-250.

231. RUBIN, FRANK L. Updating Heat-Exchanger Costs. Chem. Eng., vol. 64, No. 5, May 1957, pp. 257-258.

Revises and brings up to date figures on heat-exchanger costs that appeared in Chemical Engineering in May, July, September, and October 1953.

S

232. SAMFIELD, MAX. Dust-Collecting Equipment. Cost Eng., vol. 2, No. 4, October 1957, pp. 106-109.

Presents cost information for various types of dust-collecting equipment, such as cyclones, fabric arresters, etc.

233. SAMPLE, C. H., MARRS, DOYLE, AND YOUNG, GERALD. Gas Drilling Reduces Drill-Deeper Costs. World Oil, vol. 145, No. 2, Aug. 1, 1957, pp. 82-83.

Magnolia Petroleum Co. has successfully used natural gas in deepening operations in eight wells in the Spraberry trend area field, Midland County, Tex. Drilling costs have been reduced $2,000 per well through increased penetration rate, reduced rig time, and sale of returned gas.

234. SANDEL, MORRIS, JR. Reevaluate Your Capital Investment. Chem. Eng., vol. 64, No. 11, November 1957, pp. 231-234.

Discusses capital investment and "not-so-obvious" costs that greatly affect investment and return. These factors may affect net return on gross investment and put a completely new slant on expansion plans.

Generated on 2024-09-21 17:29 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

235. SCANGREN, WARD C. The Role of Computers in Nuclear Design. Nucleonics, vol. 15, No. 5, May 1957, pp. 56-60.

Part of a special report on analog and digital computers in nuclear engineering. This article contains cost information on various types of computers.

236. SCHANZ, JOHN J., JR., AND BARWICK, ROBERT C. Economics of Oil Refining in the Philadelphia Area. Petrol. Eng., vol. 29, No. 4, April 1957, pp. C-6 - C-9.

Compares advantages of Philadelphia area as a location for refineries. Some transportation cost figures are given for shipment of oil from Philadelphia to several towns by rail, truck, and pipeline.

237. SCHEIBEL, E. G. How to Design Optimum Extraction Columns for Minimum Overall Cost. Chem. Eng., vol. 64, No. 11, November 1957, pp. 238-240.

Reviews factors that affect cost and optimum extraction conditions Several graphs and a series of equations are included to give quick, accurate method for finding minimum cost.

238. SCHMIDT, HENRY D. Phenolic Coating Eliminates Vessel Corrosion. Petrol. Eng., vol. 29, No. 6, June 1957, p. C-17.

Change in operating conditions caused severe corrosion condition in copper chloride treating vessels at a Houston (Tex.) refinery.

Article describes how vessels were coated with a modified phenolic resin at a cost of $2,160. A metal lining would have required alloy material at an installed cost of $8,000, and a new alloy-clad vessel would have cost $16,000.

239. SCOTT, J. O. Ebullient Cooling Cuts Costs. Oil Gas Jour., vol. 55, No. 34, Aug. 26, 1957, pp. 110-111.

Sinclair Oil and Gas Co., by removing heat from engine lube oil using boiling water, simplifies installations and improve reliability of gas-engine-driven compressors. No actual cost data are included.

240. _____. How to Get Your Money's Worth From Your Mud Pumps. Oil Gas Jour., vol. 55, No. 41, Oct. 14, 1957, pp. 123-129.

A 16-page report which shows how costs can be reduced while operating efficiency is increased. No actual cost figures are provided.

241. SENATOROFF, N. K. Economics and Effectiveness of Cathodic Protection on Large-Diameter Pipelines. Petrol. Eng., vol. 29, No. 3, March 1957, pp. D-26 - D-29.

Generated on 2024-09-21 17:21 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Discusses and presents cost data on cathodic protection of a large, high-pressure gasline. This particular pipe was reconditioned and coated with enamel before being placed back in the ground with cathodic protection.

242. SHARP, R. C. Drilling Costs in California. Part 1. - Contractors to Cut Costs Close. Petrol. Eng., vol. 29, No. 7, July 1957, pp. B-78, B-82, B-84, B-86.

From 1947 to 1956 operating costs for drilling in California went up 138 percent and rate of penetration rose 148 percent, thus reducing footage price to 84 percent of 1947 total. Sharp presents several tables and graphs that show various costs for drilling wells. Contractor must continue to improve drilling technique to keep well costs as low as possible.

243. _____. What It Costs to Drill Wells in California. Part 1. Oil Gas Jour., vol. 55, No. 38, Sept. 23, 1957, pp. 101-102.

Contains essentially same information as reference 242.

244. SHAW, K. GLENN, AND LONG, RAY S. Solvent Extraction of Uranium. Chem. Eng., vol. 64, No. 11, November 1957, pp. 251-256.

Article releases new operational and cost information on solvent extraction of uranium ore, using hydrometallurgical techniques. Tables offer installed equipment cost data for process, using clarified liquor, diluted slimes, and heavy slurries. Some cost figures are also given for entire plant.

245. SHERRED, J. A. Who Will Pay Top Price for Natural Gas - Chemicals or Fuels? Petrol. Refiner, vol. 36, No. 11, October 1957, pp. 100-104.

At present natural gas is being widely used in chemical industry. However, its price is rising rapidly. Sherred discusses economics of various fuels and states that, once the price of wellhead gas rises to 30-35 cents per thousand cubic feet, coal gasification will become very competitive with natural gas.

246. SHUKIS, S. P., AND GREEN, ROBERT C. Reduce Costs With Scale Models. Chem. Eng., vol. 64, No. 6, June 1957, pp. 235-237.

Discusses use of models in plant design. States that large savings in time, money, and personnel can be realized if models are utilized properly.

247. SICARD, J. W. Galvanized Structural Steel in Gulf Coast Construction. Ind. Eng. Chem., vol. 49, No. 12, December 1957, pp. 69A-70A.

Celanese Corp. used galvanized steel in preference to painted steel in all exposed outdoor areas at its new plant in Texas. Experience has

Generated on 2024-09-21 17:28 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

shown Celanese that galvanized steel requires less maintenance and costs less initially. Galvanizing costs 20 cents per square foot, while painting ranges from 20 to 30 cents per square foot.

248. SIMONDS, C. H. What's Ahead for Gas Liquefaction. Petrol. Refiner, vo 36, No. 10, October 1957, pp. 105-107.

Continuing interest in natural-gas liquefaction indicates that commercial installations may soon be feasible. Simonds reviews economics of gas-liquefaction plants and gives some figures on plant-investment costs.

249. SLIEF, HAROLD. Old Pipeline Converted. Oil Gas Jour., vol. 55, No. 41 Oct. 14, 1957, pp. 219-220.

Briefly describes how 100 miles of 6-inch pipeline was converted from crude to product service. Cost of chemicals, scrapers, hauling of diesel fuel, and loss taken on contaminated diesel fuel was $9,060.

250. SMITH, CHARLES A. Cost Indexes. Cost Eng., vol. 2, No. 4, October 1957, pp. 110-112.

A graph compares various cost indexes based on a common value for 1951.

251. SMITH, R. B., AND DRESSER, THORPE. When to Discard Reformer Catalyst. Petrol. Refiner, vol. 36, No. 7, July 1957, pp. 199-202.

Scientific method of calculating when earning drop to a point requiring new catalyst. Important variables in catalyst life, as well as activity plots, are presented.

252. SPORN, PHILIP. Power Reactors - 4. Outlook for Utilities. Nucleonics vol. 15, No. 9, September 1957, pp. 104-107.

Fourth of 5 articles on power reactors, this article covers cost of producing electricity. Although there is very little information available for cost estimation, Sporn provides certain cost data and explains how he obtained the figures.

253. STARR, CHAUNCEY. Power Reactors - 2. Economic Trends. Nucleonics, vol. 15, No. 9, September 1957, pp. 94-99.

This article is part 2 of a series on power reactors, in which St discusses economic trends of power reactors. Nuclear power is not eco ically competitive with fossil-fuel plants at present. Starr poses va ous problems that must be solved before nuclear power will become competitive. No actual cost data are included.

254. STEARNS, GLENN M. Oklahoma's Deepest Production. Petrol. Eng., vol. 29, No. 4, April 1957, pp. B-61 - B-66.

Generated on 2024-09-21 17:23 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Describes drilling procedure for a 15,310-foot-deep gas well, which is producing about 7 million standard cubic feet per day. Cost of drilling this well was $764,236; however, very little trouble occurred in drilling. It is estimated that future wells of this type will cost approximately $1,070,000.

55. STIRLING, J. CAMPBELL. Possible Reduction of Costs, Through Use of Thin-Wall Pipe, Adequate Coating, and Wrapping. Petrol. Eng., vol. 29, No. 13, December 1957, pp. D-27 - D-32.

Stirling states that, in many instances, it is cheaper to use thin-wall pipes with adequate coating against corrosion than standard pipe with little or no corrosion protection. Wall of pipe should be just thick enough to withstand pressure of line, instead of using thick standard size pipe. Great savings in steel costs many times more than pay for extra corrosion protection. Several case histories are presented to show cost information.

56. STORMONT, D. H. Bottom-Hole Heating. Oil Gas Jour., vol. 55, No. 26, July 1, 1957, pp. 119-120, 124, 126-127.

Numerous wells more than doubled their production rate when bottom-hole heating was used. Average cost of heating a well was about $2 per day. Some installation and operating costs are given.

57. STORMONT, D. H. Low-Cost Evaluation of Flooding. Oil Gas Jour., vol. 55, No. 16, Apr. 22, 1957, pp. 140-141.

Describes portable water-treating plant designed by Shell, which permits company to evaluate waterflooding feasibility of various pools at minimum cost. No actual cost data presented.

58. STOUT, T. M., AND LASPE, C. G. Digital Computers for Process Control. Ind. Eng. Chem., vol. 46, No. 7, July 1957, pp. 38A-42A.

States that a digital computer could completely control a chemical process. It would insure optimum operating conditions and thus reduce costs. Cost of a computer system is included, along with some figures showing savings in using computer.

T

59. TAYLOR, DONALD M. Methods With Money-Saving Motives. Petrol. Eng., vol. 29, No. 13, December 1957, pp. B-26 - B-31.

This article lists several drilling and completion problems encountered in Utah-Arizona-Colorado-New Mexico Four Corners area. States methods used to solve these problems along with economical aspects of problem and solution.

60. _____. Packaged Compressors Cut Production Costs. Petrol. Eng., vol. 29, No. 3, March 1957, pp. B-50 - B-52.

Generated on 2024-09-21 17:24 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Portable compressor, with horsepower range from 240 to 660, offers several great advantages, among them: (1) Low cost; (2) high salvage value; (3) good flexibility; and (4) ready availability and quick installation. Taylor names brake-horsepower per year as operating cost of packaged units, although he states that labor cost used in calculating that figure was probably much too high.

261. TAYLOR, DONALD M. This Chart Saves Money on Pipeline Maintenance. Petrol. Eng., vol. 29, No. 5, May 1957, pp. D-28 - D-30.

Describes a graphic system of keeping check on pipeline maintenanc Chart shows location and cause of leaks and pipe-to-soil potential at every point on pipeline. Presents actual costs.

262. THIBADEAU, A. T. Circulation Cleaning with Detergents. Oil Gas Jour., vol. 55, No. 25, June 24, 1957, pp. 136-138.

Describes method used to clean 5 towers of a C_4 vapor-recovery unit with a specially designed detergent in 2-1/2 days, at a saving of $2,355 in cost of cleaning compound.

263. THOEN, J. O. Does Inspection Increase Maintenance Costs: Petrol. Refiner, vol. 36, No. 1, January 1957, pp. 132-133.

Thoen briefly discusses inspection methods and concludes that a good inspection program, properly carried out, will save money.

264. THOMAS, E. IVAN. Cost of Pneumatic Control Systems. Oil Gas Jour., vol. 55, No. 11, Mar. 18, 1957, pp. 113-116.

Typical overall costs of pneumatic control systems are presented as obtained from the Carbide & Carbon Chemicals Co. instrument department. Carbide has developed a system of unit cost figures, and some of these installed costs are given for such items as: Control room, panels, air-supply headers, pneumatic tubing, process leads to instruments, and instruments themselves.

265. _____. Pneumatic Control - in Cash. Petrol. Processing, vol. 12, No. 4, April 1957, pp. 97-101.

This article describes a unit cost system which enables one to estimate instrumentation of any job closely.

Costs are broken down into 4 main categories: Control room, panel board, instrument tubing, and instruments themselves. Method used to calculate each of these costs is described in article.

Average pneumatic instrument can be installed for $220 and operated for 17 cents per day.

266. TOOMB, D. S., JR. Instrumentation and Controls for HRT. Nucleonics, vol. 15, No. 2, February 1957, pp. 48-52.

Generated on 2024-09-21 17:22 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Reviews overall system for controlling HRT (homogeneous reactor tests), as well as components that make it up. Approximately $400,000 was spent for labor and materials for HRT instrumentation and control system, or about 15 percent of plant costs.

7. TUBB, G. G. A Quick Look at Your Production Economics. World Oil, vol. 144, No. 7, June 1957, pp. 234-235.

Nomograph that makes it possible to quickly determine potential profit or loss that may be expected from drilling a well.

U

3. ULLMAN, J. W., AND ARNOLD, E. D. Choosing Storage Time to Minimize Processing Costs. Nucleonics, vol. 15, No. 6, June 1957, pp. 80-82.

To determine optimum fuel cycle, cost of storing spent fuel must be balanced against processing, refabrication, and shielding costs. These factors are considered for various fuels and reactor types.

). UNZELMAN, G. H. What Sulfur Means to 100-Octane Fuels. Petrol. Processing, vol. 12, No. 6, June 1957, pp. 70-76.

Discusses effects of sulfur on high-octane gas and ways in which sulfur can be removed. Some cost figures are included.

W

). WARREN, A. S., AND PARDO, V. A. Cost of Industrial Instruments - Recorders, Controllers, Indicators. Cost Eng., vol. 2, No. 1, January 1957, pp. 10-19.

Brings up-to-date cost data presented in Chemical Engineering Costs Supplement, vol. 1, No. 1, April 1951, pp. 22-27. Some additional cost information is also presented.

.. WEAVER, JAMES B. Chemical Costs and Profitability Estimates - 1956. Ind. Eng. Chem., vol. 49, No. 6, June 1957, pp. 936-946.

Second in series of annual reviews on chemical engineering economics. Includes discussions of effect of inflation, costs and sources of capital, evaluation of research by estimation, and engineering economy and operations research.

Also includes an annotated bibliography, a subject index, and a critical discussion of published material.

:. WEST, L. E. Hydraulic Jet Cleans Topping Unit Condensers. Petrol. Eng., vol. 29, No. 12, November 1957, p. C-60.

Describes a jet lance, a mechanical aid developed for use in specialized chemical applications. This lance is very useful in cleaning

Generated on 2024-09-21 17:29 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

cokelike scale deposits from crude preheater exchangers in topping unit. High-velocity jets of water from lance strike deposit and remove it quickly. Comparison of cleaning costs showed that, for sand blasting, total cost was $22,020, while using hydraulic jet for same exchanger cost was only $6,807.

273. WHITELY, D. M. Plastic Heat Exchangers Gain in Severe Service. Chem. Eng., vol. 64, No. 9, September 1957, pp. 308, 310, 312, 314.

Discusses plastic exchangers compared with metal exchangers. Advantages of plastic are: (1) Corrosion resistance; (2) flexibility of design; and (3) low cost. Cost data of various heat-exchanger materials are given in graphic form.

274. WILLIAM, VICTOR R. Problems in Drilling a Deep Slim Hole. Petrol. Eng., vol. 29, No. 11, October 1957, pp. B-42, B-44, B-46 - B-51.

Describes drilling of 9,160-foot well in Oklahoma, using slim-hole methods. Process trimmed $27,000 of cost of well, in spite of lost circulation, a down-hole fire, 10 days reaming time, fishing, and sidetracking hole.

275. WILLIAMS, RAY W., AND MESAROS, JOHN. Everybody Loves the Centrifuge. Petrol. Eng., vol. 29, No. 4, April 1957, pp. B-44 - B-49.

Use of centrifuge to make low-density mud has helped reduce drilling costs. Cost of preparing 1 barrel of 17-pound mud is given as $15.85, and cost of centrifuging 100 barrels of mud is $2,120.

276. WOBUS, R. S. Estimation of Direct Operating Labor Requirements for New Manufacturing Processes. Chem. Eng., Prog., vol. 53, No. 12, December 1957, pp. 581-585.

Presents a method which, although less detailed than time-and-motion study, is thought to be a satisfactory alternate to guide management decisions on labor aspect of new product evaluation. No actual cost data are given.

277. WORLD OIL. Special Offshore Report. Vol. 144, No. 6, May 1957, pp. 118-148.

Long report on all phases of offshore drilling. Several parts of this report provide some cost data, such as comparison of offshore and onshore drilling costs, exploration costs, etc.

Z

278. ZEITLEN, H. R., ARNOLD, E. D., AND ULLMAN, J. W. Economics of Waste Disposal. Nucleonics, vol. 15, No. 1, January 1957, pp. 58-62.

By 2000, accumulated fission-product activity may be greater than 3- by 10-inch curies. In this article are discussed economic aspects

Generated on 2024-09-21 17:20 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

of this tremendous waste-disposal problem. It is estimated that a cost of $1.60-$64 per gallon will be permissible for predicted nuclear-power economy.

ZENZ, F. A. Allowable Entrainment at Minimum Cost. Petrol. Refiner, vol. 36, No. 3, March 1957, pp. 179-181.

Describes empirical relationship that defines entrainment rate at minimum fractionator costs.

ZIEGENHAIN, WILLIAM C. Molecular Sieves Boost Octane Ratings of Light Naphtha and Reformate. Petrol. Eng., vol. 29, No. 9, August 1957, pp. C-6 - C-12.

Laboratory studies indicate that a commercial molecular sieves unit could boost catalytic reformate octane rating at least 5 RON (Research Octane Number) without total yield debit.

Presents a table showing economic, justification for new system. Cost is given as $1,237,500 for 4,500-barrel-per-day plant, and percentage of return annually on investment is 19.2 percent.

ZIMMERMAN, O. T., AND LAVINE, IRVIN. Miscellaneous Cost Data. Cost Eng., vol. 2, No. 4, October 1957, pp. 113-114.

Cost data given for centrifugal air compressors, horizontal rotary filters, thickener, gas turbines, and steam turbines.

_____. Wood Tanks. Cost Eng., vol. 2, No. 1, January 1957, pp. 20-22.

Series of graphs presents cost data for different-size round wood tanks, covers for tanks, and tank ladders.

ZOLIN, B. I., AND GREEN, J. G. Epoxy Resins - an Engineering Material for the Chemical Industry. Part 1. Ind. Eng. Chem., vol. 49, No. 2, February 1957, pp. 61A, 62A, 64A, 70A. Part 2. Ind. Eng. Chem., vol. 49, No. 3, March 1957, pp. 59A, 60A, 62A.

A 2-part article listing a series of 14 case histories that show how high-strength epoxies can be used for fabricating equipment at savings up to $13,150 per year.

Generated on 2024-09-21 17:22 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

SUBJECT INDEX

Item

A

Acetic anhydrite, manufacture cost 115
Acid:
Salicylic, plant and operating costs 125
Sulfuric, from anhydrite 132
2, 4-D, investment and production costs 124
Acetonitrile, substituted for acetone, increased capacity . 54
Adsorption:
Automatic gasoline unit 207
Fixed-bed, to recover natural gasoline 85
Agitators, side-entering propeller 12
Alkylation:
Olefin-isobutane, operating costs 213
Sulfuric acid, investment and operating costs 214
Ammonium nitrate, single-step manufacture 212
Ammonium sulfate, gypsum process 116
Analyzers, continuous, discussion and cost 187

B

Batch process, compared with continuous process 82
Bibliography, cost data 70, 271
Bits, three-cone 31, 32
Building, cost 146

C

Capital investment, discussion. 234
Carbon dioxide, removal from gas streams 180
Carbon tetrachloride, manufacture cost 117
Catalyst, reformer, when to discard 25
Catalytic cracker, revamp with a turnaround 2
Catalytic reforming, Unifiner-catformer combination 8
Cathodic protection:
Cost 83, 8
Handbook 20
Large-diameter pipeline, economics 24
Offshore structure 16
Cells, diaphragm-type electrolytic 3
Centrifuge, for low-density mud 27
Chlorine:
From diaphragm and mercury cells 11
Recovery 43, 13
Chlorine dioxide, manufacture . 4
Compressor:
15,000-hp. single unit, cost. 15
New techniques for stations . 19
Operating costs 14
Portable, cost 26
Computers:
Determining unit costs 13
For nuclear design 23
For process control 25
Construction:
Incentive contracts - saving money 22
Refinery index 18
Construction materials, for corrosive fumes .....
Control materials, rare earths.
Control system:
Cost 27
For HRT (nuclear reactor) ... 26
Pneumatic, cost of 264, 26
Conveyers, belt, cost 17
Cooling, ebullient, reducing costs 23

Generated on 2024-09-21 17:22 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

	Item
ooling water:	
Treatment, cost	128
Economic evaluation	140
orrosion control:	
Cathodic protection .. 83, 84,	202
Effectiveness	241
Coating and wrapping	255
Concrete pipe	189
Galvanized steel	247
Liquid dump bailer	168
Offshore structures	167
Painting vs. steel thickness ... 14,	135
Phenolic coating	238
Pipeline protection 109,	226
Refiners, discussion	190
Titanium	102
Zinc coating, cost	127
osts:	
Analysis, income tax	137
Bibliography 70,	271
Buildings	146
Construction, incentive contracts	229
Control system	186
Cost-control program	86
Direct labor	113
Evaluation	99
Investment and processing 115,	126
Lab, reduction	58
Labor	47
Maintenance, reduction .. 136,	185
Pipe, labor and material	65
ostimating	182
ost index:	
Comparative equipment costs 41,	42
Comparison of various indexes.	250
Marshall & Stevens	41

D

ata logging, cost 63,	230
elivery, bulk, new devices	56
esign, scheduling	33
epreciation, analysis of seven different methods	103
erricks, aluminum, discussion .	81
etergents, circulation cleaning	262
isintegrator, Rietz, cost	179
Drilling:	
Air, savings 223, 227,	148
Air and gas, cost 2,	3
Costs 176, 177, 209,	254
In California 150, 151, 242,	243
Deep slim hole, cost	274
Deviation program	93
Directional, cost comparison.	78
Dry hole, cost distribution .	98
Gas, reducing deepening costs	233
Low solid mud, cost	164
Mobile drilling unit	88
Modern technology, effect ...	224
Offshore, cost data	277
Parallel macaroni string	104
Parallel string completions .	95
Problems, discussion	259
Production economics	267
Small-hole completion	35
Uses of mud to save liner costs	101
Very high hole temperature ..	143
Duclayer process unit, operating costs	112
Dust-collection:	
Equipment, cost	232
Wet scrubber	62

E

Electrical materials, use of alloys	28
Entrainment, at minimum fractionator costs	279
Epoxy resins, for fabricating equipment	283
Ethane, recovery from natural gas, economical study	205
Ethylene, manufacture using standby facilities	53
Equipment:	
Bill breakdown	40
Determining when to replace .	210
Evaporators, turbulent film, investment and operating costs	126
Expansion, "package" concept cuts cost	9
Exploration costs:	
Finding gas	225
Finding oil	178

Generated on 2024-09-21 17:23 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Item	
Extraction, solvent, uranium ..	244
Extraction column, optimum design at minimum cost	237
F	
Ferromanganese, manufacture ...	46
Filters, bauxite 23,	24
Filtration-extraction process, cost analysis	79
Flocculants, cost	50
Footing, most economical size .	111
Formic acid, manufacture cost .	119
Furnace, Udy arc, description .	46
G	
Gas:	
Liquefaction, investment cost	248
Operating costs 153,	154
Natural, price	245
Gasoline:	
From mineral oil, cost	206
High-octane:	
Cost 71, 72,	73
Effect of sulfur	269
110 octane, cost 16, 17,	18
Upgrading, costs	246
When to use isomerization 110,	149
H	
Heater, air, fuel saving	34
Heat exchanger:	
Aluminum alloys	97
Costs, revised	231
Plastic vs. metal, cost comparison	273
Heating, bottom-hole, cost	256
H-Oil process, economic study 220,	221
Hydraulic jet, reduction of cleaning costs	272
Hydrogen, low-temperature recovery system	203
I	
Instrumentation, costs	270
Insulation, foam, cost	
Ion exchange:	
Cost data	
Uses and operating costs	
L	
Labor costs:	
Checklist	
Direct operating	
Labor requirements, direct operating, estimation	
LACT unit:	
Description and cost 13,	
Pneumatic system cuts costs .	
Lubrication:	
Automatic system	
Scheduling	
M	
Maintenance:	
Automatic lubrication cuts costs	
Bases for comparison	
Contract cuts costs	
Control system 165,	
Costs are lower	
Cost control	
Discussion	
Inspection methods	
Pipeline, chart saves money .	
Tools, discussion	
Meter, positive displacement, cost	
Mining:	
Iron ore, methods and costs .	
Lead, methods and costs	
Limestone, methods and costs.	
Mercury, mining and treating costs	
Uranium, methods and costs .. 74, 75,	
Zinc-lead ore, methods and costs 66, 69,	
Models, scale, savings	
Molecular sieve, increase octane rating	

Generated on 2024-09-21 17:23 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

	Item
N	
ıtural gas:	
Liquefaction 153, 154,	248
Price	245
ıtrogen, removal methods	29
ıclear reactors:	
Argonant, description and cost	7
Comparison of United States and England	129
Cost of producing electricity	252
EBWR, power costs	191
Economic trends	253
ETR, cost	30
Fuel-fabrication costs	139
Hinkley Point, cost data	194
Homogeneous economic analysis	192
HRT, instrumentation and control	266
Irradiator for meat	114
Moderator control	195
PAR, capital and operating costs	145
SRE, cost	196
O	
.l:	
Price regulation, discussion.	199
Spray deoiling process	96
Reduction of fixed equipment.	89
Reduction of production costs	169
Transportation	90
.ygen, plant cost	52
P	
ıckaging:	
Cost comparison of different containers	122
Multiwall bags	155
.inting:	
Compared with increased steel thickness 14,	135
How to reduce costs	173
"Mass color" in chemical plants	10
.ntafining, economic study ...	110
Phenol:	
Coating, corrosion protection	238
Commercial processes, cost comparison	123
Pipe:	
Concrete, cost	189
Corrosion,protection	226
Cost	65
Lightweight vs. standard	133
Plastic and metal, cost comparison	188
Thin wall, saves money	255
Pipelines:	
Cost of converting from crude to product service	249
Maintenance, chart saves money	261
Piston, free, use and cost	26
Plant:	
Ammonium nitrate, cost	212
Butadiene, cost	22
ClO_2, cost	45
Formic acid, cost	119
Hexamine, cost	57
Investment, discussion	100
Layout, evaluation	163
Oxygen, cost	52
Potassium borohydride, cost .	94
Refinery, cost 211,	215
Salicylic acid, cost	125
Soap, cost	120
Sodium chloride, cost	121
Styrene, cost	36
Titanium, cost	60
Potassium borohydride, manufacture	94
Power:	
EBWR, cost	191
Electric, cost	77
Electricity, producing, cost.	252
Wasted power recovered .. 107,	108
Prime mover:	
Comparison of engine and electric	157
Turbine drive, operating and investment costs	170
Profit, net return after taxes.	64
Pumps:	
Mud, discussion	240
Packless, cost	147

Generated on 2024-09-21 17:19 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Item

Pumping:
  Electric 19
  Pipeline stations, discussion 174
  Power saving 15

R

Rack, truck-loading, prevents fires 200
Radiation:
  For processing meat 114
  In chemical plant, uses 160
  In food and plastic industry, use 193
Radioisotopes, in refinery, uses 21
Recovery systems:
  Chlorine 43, 134
  Ethane from natural gas 205
  Hydrogen, low-temperature ... 203
  Key to low costs 46
  Uranium:
    From aqueous wastes 68
    From gold reducing plants . 131
  Waste acid 44
Refracture, cost 106
Refrigeration, steam-jet, requirements and cost 67
Reprocessing:
  Enriched uranium alloy 11
  Nuclear fuel 27
Roads, cost 156

S

Samples, automatic counting system 228
Scale-up, economics 80
Separator, one-well measuring . 162
Shale oil, economic outlook ... 55
Sodium hypochlorite, to control odor 49
Soap, production, cost 120
Sodium chloride, manufacture .. 121
Steel, galvanized structural, cost 247
Storage:
  Spent reactor fuel, economics 268
  Underground:
    Cost 4
    Economic comparison with aboveground 217
Sulfuric acid, investment and production costs 1
Switchgears, cost .....

T

Tanks, wood, cost 2
Technology, questions 1
Titanium, industrial application 1
Titanium plant, cost .....
Transportation, oil:
  Cost from Philadelphia to various towns 2
  Discussion and cost of various types .....
Tubing, aluminum and admiralty, cost .....
Turbines, gas, economics .....

U

Uranium:
  Natural vs. enriched 1
  Recovery:
    From aqueous wastes .....
    From gold reducing plants . 1
  Solvent extraction of ore ... 2

W

Waste disposal, fission products, economics 2
Waste stream:
  Reducing phenol content, cost
  Treatment of organic waste ..
Water:
  Conditioning, ion exchange ..
  Cooling:
    Economic evaluation .....
    Treatment of .....
  Demineralization:
    Costs .....
    Electric membrane .....
Waterflooding, oil wells 91, 197, 2
Wells:
  Deep, cost .....
  Deep gas, cost .....
  Directional drilled, cost of well .....

Generated on 2024-09-21 17:20 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

AUTHOR INDEX

	Item
A	
dams, Ernestine	1
dams, John H.	2, 3
llen, J. R. See Monack, M. L.	
nderson, Jack O.	4
nderson, W. Kermit	5
pitz, C. R.	6
rmstrong, R. H., and Kelber, C. N.	7
rndt, Fred W.	8
rnold, E. D. See Ullmann, J. W. See also Zeitlen, H. R.	
rnold, T. Ben, and Valentine, Stephen	9
B	
acon, R. H., and Volkening, V. B.	10
all, R. M. See Guernsey, E.O.	
anus, M. Douglas. See Fedor, Walter S.	
asel, Louis, and Koslov, Joseph	11
arwick, Robert C. See Schanz, John J., Jr.	
ates, Robert L.	12
each, Frank W.	13
eychok, M. R. See Brack, W.L.	
igos, Joseph	14
See also Jackson, J. O.	
ingham, C. A.	15
lood, R. H. See Camp, J. M.	
lumberg, S. P.	16-18
oosa, William L.	19
oulliоun, E. H., Jr.	20
oynton, Stuart D.	21
rack, W. L., and Beychok, M. R.	22
rant, V. L.	23, 24
rereton, D. S., and Dunki- Jacobs, J.	25
rooks, W. B. See Osborn, Oliver.	
rown, Norman F.	26
Bruce, Frank R.	27
Bryan, J. M.	28
Burnham, J. G.	29
Bush, Philip D.	30
C	
Calhoun, Willis A. See Pettit, Robert F., Jr.	
Camp, J. M., Ortloff, J. E., and Blood, R. H.	31, 32
Campagnolo, J. F. See Pichler, H.	
Campbell, H. T.	33
Campbell, O. F.	34
Cannon, G. E., and Watson, R.A.	35
Cannon, Ron	36
Caterson, A. G. See Fraser, G. T.	
Chemical Engineering	37-62
Chervenak, M. See Pichler, H.	
Chilton, C. H.	63
Chou, James	64
Clark, W. G.	65
Clarke, S. S.	66
Clayton, Carl C.	67
Clouse, R. J., Dykstra, J., and Thompson, B. H.	68
Cole, W. A.	69
Cost Engineering	70
Curry, S. W.	71-73
D	
Dare, W. L.	74, 75
Dare, W. L., and Delicate, D. T.	76
David, M. M. See Peak, R. F.	
Davis, Jack G. See Doremus, E. P.	
Davis, Luther W.	77
Daze, R. E. See Mayo, H. C.	
deChastelain, A. G. G.	78
Decossas, K. M., Many, H. G., McMillan, O. J., Jr., Gastrock, E. A., and Pollard, E. F.	79

Generated on 2024-09-21 17:19 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Item

Delicate, D. T. See Dare, W. L.
Dickerson, R. G. 80
Dietsch, F. F., and Wilcox, D. V. 81
Donovan, J. R. 82
Doremus, E. P., and Davis, Jack G. 83
Doremus, G. L., and Lawnick, J. J. 84
Douglas, Burke, See Osborn, Oliver.
Dow, W. M. 85
Dresser, Thorpe. See Smith, R. B.
Duncan, Dan 86
Dunki-Jacobs, J. See Brereton, D. S.
Duval, Claiborne A. See Greek, Bruce F.
Dykstra, J. See Clouse, R. J.

E

Eckel, J. G., and Worrell, G.R. 87
Eilertsen, N. A. See Evans, Thaddeus, B.
Elder, Harvey, B., Jr. 88
Elliott, Rainey 89
Emerson, H. N. 90
Ervin, P. S. 91
Evans, Thaddeus B., and Eilertsen, N. A. 92
Ewen, T. Pinkney. See Hull, William Q.

F

Faber, John H. See Katell, Sidney.
Faulk, Hugh 93
Fedor, Walter S., Banus, M. Douglas, and Ingalls, David P. 94
Feeser, John R. 95
Finlay, W. L. See Fraser, G.T.
Fischer, Werner 96
Flournoy, R. W. 97
Folks, John H. 98
Fowler, Frank C. 99, 100
Fowler, J. J. 1
Fraser, G. T., Finlay, W. L., and Caterson, A. G. 1

G

Gaffney, B. J. 1
Garrett, H. U., and Taylor, Donald M. 1
Gastrock, E. A. See Decossas, K. M.
Gerdes, C. W. 1
Gerolde, Steven 1
Givens, Homer C. 107, 1
Glass, Dean 1
Grane, H. R., Ozawa, J. K., and Worrell, G. R. 1
Grant, John B., and Smith, Raymond J. 1
Greek, Bruce F., Duval, Claiborne A., and Kalichevsky, V. A. .....
Green, J. G. See Zolin, B. I.
Gropper, Fred .....
Guernsey, E. O., and Ball, R. M.

H

Hardy, Walter L. 5-
Helms, F. P. .....
Helwig, J. D., and McConomy, H. F. .....
Herron, D. P., and Puishes, A. .
Hershey, R. L., and Schwartz, C. R. .....
Holmes, B. G. See Massad, A. H.
Hull, William Q., and Ewen, T. Pinkney .....
Hull, William Q., Schon, Frank, and Zirngibl, Hans .....
Hunter, James N., Jr. .....

I

Industrial and Engineering Chemistry .....
Ingalls, David P. See Fedor, Walter S.

Generated on 2024-09-21 17:23 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Item

J

ıckson, J. O., and Bigos, Joseph 135
ɛlen, F. C. 136
ɔhn, A. 137
ɔhnson, C. A. See Pichler, H.
ɔrgensen, R. C. See Osborn, Oliver.

K

ıhler, F. H., and Reents, A.C. 138
ıkichevsky, V. A. See Greek, Bruce F.
ıllman, Donald 139
ıne, E. W. See Krane, H. G.
ıtell, Sidney, and Faber, John H. 140
ıtell, Sidney, and McGee, J.P. 141
ıty, W. E. 142
ɛen, R. E. 143
ɛlber, C. N. See Armstrong, R. H.
ɛlly, Harold S. 144
ɛnton, John E. 145
ɛernan, Frank 146
ɛima, B. B. 147
ɛight, R. L. 148
ɛslov, Joseph. See Basel, Louis.
ane, H. G., and Kane, E. W. . 149

L

Bouff, John J. 150, 151
ne, James A. See Menke, John R.
ne, Marvin, E. 152
spe, C. G. See Stout, T. M..
vine, Irvin. See Zimmerman, O. T.
wnick, J. J. See Doremus, G. L.
derman, Peter B., and Williams, Brymer ... 153, 154
e, Chesman A. 155
ese, J. P. 156
ɛlie, C. F. 157

Item

Lewis, W. B. See Menke, John R.
Licker, Margaret R. 158
Long, Ray S. See Shaw, K. Glenn
Love, Frank H. 159
Low, Frank H. 160

Mc

McConomy, H. F. See Helwig, J. D.
McGarvey, Frank X. 161
McGee, J. P. See Katell, Sidney
McGhee, Ed. 162
McMillan, O. J., Jr. See Decossas, K. M.

M

Macy, F. D. 163
Mallory, H. E. 164
Many, H. G. See Decossas, K.M.
Margo, B. A. 165, 166
Marrs, Doyle. See Sample, C.H.
Massad, A. H., and Holmes, B.G. 167
Maxwell, Victor W. 168
Mayer, F. M. 169
Mayo, H. C., and Daze, R. E. .. 170
Menke, John R., Lewis, W. B., Lane, James A., Starr, Chauncey, and Shoupp, William E. 171
Mesaros, John. See Williams, Ray W.
Mills, Herbert E. 172
Monack, M. L., Shockley, H. W., and Allen, J. R. 173
Moore, F. A. 174
Morris, James F. 175
Morrisey, Norman S. 176-178
Mulcahy, P. H. 179
Mullowney, J. F. 180

N

Nelson, C. R. 181
Nelson, W. L. 182-184
Newton, Edmund C. 185
Nitchie, E. B. 186
Noebels, Henry J. 187

Generated on 2024-09-21 17:21 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Item

Norden, R. B. 188, 189
Northup, M. S. 190
Nucleonics 191-196

O

Oil and Gas Journal 197-200
Olds, E. B., and Parsons, E. W. 201
Ortloff, J. E. See Camp, J.M.
Osborn, Oliver, Schrieber, C. F., Brooks, W. B., Jorgensen, R. C., and Douglas, Burke 202
Ozawa, J. K. See Grane, H.R.

P

Palazzo, D. F., Schreiner, W. C., and Skaperdas, G.T... 203
Pardo, V. A. See Warren, A. S.
Parsons, E. W. See Olds, E.B.
Peak, R. F., and David, M. M.. 204
Penick, Dudley P. 205
Petroleum Engineer 206-210
Petroleum Processing 211-214
Petroleum Refiner 215-218
Pettit, Robert F., Jr., Calhoun, Willis A., and Reynolds, Burton M. 219
Pichler, H., Chervenak, M., Johnson, C. A., Sze, M. C., and Campagnolo, J. F. 220, 221
Pierce, David E. 222
Pollard, E. F. See Decossas, K. M.
Puishes, A. See Herron, D. P.

R

Radford, Leroy 223
Ragland, Douglas 224
Ralph, Henry D. 225
Reed, Paul 226
Reents, A. C. See Kahler, F. H.
Rehberg, Jerome A. 227
Relf, Kenneth E. 228
Reynolds, Burton M. See Pettit, Robert F., Jr.

te

Ross, J. E. 22
Roy, T. R. Vick 23
Rubin, Frank L. 23

S

Samfield, Max 23
Sample, C. H., Marrs, Doyle, and Young, Gerald 23
Sandel, Morris, Jr. 23
Scangren, Ward C. 23
Schanz, John J., Jr., and Barwick, Robert C. 23
Scheibel, E. G. 23
Schmidt, Henry D. 23
Schon, Frank. See Hull, William Q.
Schreiner, W. C. See Palazzo, D. F.
Schrieber, C. F. See Osborn, Oliver.
Schwartz, C. R. See Hershey, R. L.
Scott, J. O. 239, 24
Senatoroff, N. K. 24
Sharp, R. C. 242, 24
Shaw, K. Glenn, and Long, Ray S. 24
Sherred, J. A. 24
Shockley, H. W. See Monack, M. L.
Shoupp, William E. See Menke, John R.
Shukis, S. P., and Green, Robert C. 2
Sicard, J. W. 2
Simonds, C. H. 2
Skaperdas, G. T. See Palazzo, D. F.
Slief, Harold 2
Smith, Charles A. 2
Smith, R. B., and Dresser, Thorpe 2
Smith, Raymond J. See Grant, John B.
Sporn, Philip 2
Starr, Chauncey 2
See also Menke, John R.
Stearns, Glenn M. 2
Stirling, J. Campbell 2

Generated on 2024-09-21 17:19 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Item

ormont, D. H. 256, 257
out, T. M., and Laspe, C. G. 258
e, M. C. See Pichler, H.

T

ylor, Donald M. 259-261
See also Garrett, H. U.
ibadeau, A. T. 262
oen, J. O. 263
omas, E. Ivan 264, 265
ompson, B. H. See Clouse, R. J.
omb, D. S., Jr. 266
bb, G. G. 267

U

lmann, J. W., and Arnold, E. D. 268
See also Zeitlen, H. R.
zelman, G. H. 269

V

lentine, Stephen. See Arnold, T. Ben.
lkening, V. B. See Bacon, R. H.

W

:ren, A. S., and Pardo, V. A. 270
:son, R. A. See Cannon, G.E.

Item

Weaver, James B. 271
West, L. E. 272
Whitely, D. M. 273
Wilcox, D. V. See Dietsch, F. F.
William, Victor R. 274
Williams, Brymer. See Lederman, Peter B.
Williams, Ray W., and Mesaros, John 275
Wobus, R. S. 276
World Oil 277
Worrell, G. R. See Eckell, J. G. See also Grane, H. R.

Y

Young, Gerald. See Sample, C. H.

Z

Zeitlen, H. R., Arnold, E. D., and Ullmann, J. W. 278
Zenz, F. A. 279
Ziegenhain, William C. 280
Zimmerman, O. T., and Lavine, Irvin 281, 282
Zirngibl, Hans. See Hull, William Q.
Zolin, B. I., and Green, J. G.. 283

U.S. GOVERNMENT PRINTING OFFICE: 1959 O - 500125

Generated on 2024-09-21 17:27 GMT / https://hdl.handle.net/2027/osu.32435030643423
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY